4h K.17.86.

An Account of

The Nature, Cauſes, Symptoms and Cure OF THE DISTEMPERS That are incident to Seafaring People.

WITH

Obſervations on the Diet of the Sea-men IN HIS Majeſty's Navy.

Illuſtrated with ſome Remarkable Inſtances of the Sickneſſes of the Fleet during the laſt Summer, hiſtorically related.

Libera per vacuum poſui veſtigia princeps,
Non aliena meo preſſi pede. Horat. epiſt. xix. lib. 1.

By *W. C.* of the Colledge of Phyſicians, *London*: And Phyſician to the Blue Squadron of his Majeſty's Fleet.

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206 : 11

TO THE
Right Honourable
THE
Lords Commissioners
For executing
The Office of Lord High Admiral of *England*, *Ireland*, &c.

My Lords,

YOUR Lordships having been pleased to appoint me One of the Physicians of the Fleet, I thought my self obliged, to use my utmost endeavours for discharging the

Trust you committed to me: and therefore I, not only, kept a Journal of the Mens Names, and a History of their Sickness; but of the Medicins I gave them, with the Success they had. And when I had considered the *way* of their living, and other circumstances, there appeared to me a very reasonable View of the Diseases at Sea, which I first committed to Paper

per for my own Aſſiſtance in the Service; but am now perſwaded to ſubmit thoſe Thoughts to the Cenſure of the World. Yet, in This I ſhall run no great Riſque, under your Lordſhips Protection, which, I hope, you will not deny me; ſince 'tis your Lordſhips gave Them, firſt, Life, and They have grown up under your Favour to what They are: ſo that if They ob-

obtain the End, I deſign'd Them for, the publick Good; 'Tis the Publick muſt thank you for Them. I am, with great Reſpect,

My Lords,

Your Lordſhips Moſt Humble and Faithful Servant,

W. Cockburn.

do

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THE

PART I.

An account of those Sicknesses that are incident to Sea-faring People.

THere are none who have us'd the Sea for any time, especially in the Royal Navy, but must be highly sensible how useful an *undertaking* of this nature is; and how assisting to most of the Surgeons, who pursue their employments at Sea, and particularly in the Meridian for which this is calculated; and yet 'twas never attempted by any, of what Nation soever, as far as I can learn, either by reading or conversation. Officers and Sailers must needs have their courage (which is naturally great, besides its being supported by the Applauses and

The usefulness of this Undertaking.

Rewards of Honour) much augmented, by the ſecurity they may have in the ſuitable proviſion that is made for their health; and the Surgeons themſelves, having a full view of all the maladies they are to encounter upon that Element, will ſurely be better provided than when their expectations are more general.

Its uſe, I think, by theſe ſmall hints, is put beyond all exception; and I do heartily wiſh I could have as good help to my practiſing in Medicin in our world, the watry Element; but ſince I can have none, I doubt not but the ingenious will very eaſily pardon a Treatiſe of this kind; and almoſt any miſtakes, I can fall under, ſince the paths of former Curers are as little perceptible, as the furrows made upon the face of the angry Abyſs, by our lofty floating Forts, can prove guides to the Seamen that ſteer the ſame courſe but next hour: for my own part, I ſhould have no more ventur'd upon it, than I ſhould have been the firſt that put to Sea, were it not that the ſtation Providence has plac'd me in, might ſeem to demand ſome teſtimony of

my

my diligence in the ſame; which, I muſt confeſs, is not ſo great as the Service requires. This I was, once, reſolved to perform by the way of a Journal of thoſe Sickneſſes, that happen'd ſince my concern in the Fleet; but thinking, again, that this ſhould be more complete, if I ſhould conſider in general, by their way of living, the Sickneſſes they might be moſt ſubject to, and then year after year, ſo long as I am to continue with them, to give the particular Hiſtory of the Sickneſſes of that year, with an exact account of the ſucceſs in the ſame; which will be ſo many confirmations of my general Theory, and evince how well or ill it is eſtabliſhed. And therefore I ſhall firſt endeavour, to diſcover *ſuch ſickneſſes as may be peculiar to people that uſe our narrow Seas; to diſtinguiſh them from thoſe that may be got nearer, or under, the line; from thoſe that may be common upon the land, to what we have ſometimes at Sea; and laſtly, in the hiſtory of this year, to denote, in ſome meaſure, the Indications for, and the Method of Cure.* Its order.

But that all theſe may be purſu'd with the greateſt exactneſs imaginable,

it will be highly neceſſary, firſt to deſcribe *the particular way of their livings*; that from this we may ſee and deduce, as naturally, as is poſſible, thoſe infirmities, that moſt eſpecially follow thereupon; and this we ſhall do, firſt by conſidering *their victuals allowed them for their daily ſuſtenance*; *their way of living*; and laſtly *their life*, as to their *temperance* or *debauches*. I am not ignorant how uſeful, yea neceſſary, it had been, to have had ſome reſpect to, and conſideration of the temper and conſtitution of the *air* they live in, and how ſatisfying it would have proved to ſuch as are *curious* and *ingenious*, to have made ſome Remarks upon the *differences* of that at *ſea* and *land*: but all I can ſay upon that head being ſo general and precarious, and of ſo little real uſe in my deſign, that I have rather choſen to paſs it by in perfect ſilence, and not to offer that to the world, of which I have ſo little ſatisfaction my ſelf: yet, this I did not leave quite unattempted, but did carry a very good *Baryſcope* on board with me, and did hang it as conveniently as I could contrive; yet in the *calmeſt* weather, and at *anchor*, the

the *heaving* motion of the Ship did so much disturb my *Mercury*, that I did conclude it of no use, and perfectly unpracticable, when under sail with the easiest gale of wind; And therefore to say no more of this, I do betake my self to the considerations I have just now proposed.

And first, the *victual*, allow'd them for their daily sustenance, are *Pork* and *Pease* on *Sundays* and *Thursdays*; on *Mondays Oatmel* (Burgoo) *Butter* and *Cheese*; on *Tuesdays* and *Saturdays Beef* and *Pudding*, or *all Beef*, which they please; on *Wednesdays* and *Fridays Butter* and *Cheese*, or *Oatmeal* and *Pease*, and with all these abundance of *Bread*. Now all these victuals are so sound, and the meat so well salted, that not only there can be no better found any where, but 'tis generally believed, that the *Sea-Pork*, especially, is the best in *England*; and they have a greater allowance of all these in their proper turns, than is sufficient to satisfy an ordinary Eater. So that whatever a Sailer may complain of in the *Royal Navy*, his victuals are a great deal better, and his allowance larger, than in any *Navy* or *Merchant-* Their Victuals.

ships in the world. Their drink is as good *Table beer* as any Family in *England* can drink; and the *quantum* is what they will. So that, in the general, if we consider the number of men, the length of the Voyages, in Convoys and Cruisers, the Grand Fleet in the Channel, and their Work; their Diet will be found, in all these circumstances, to be almost as well provided and adapted, even for the preservation of health, as it can possibly be.

'Tis true, *salt victuals* have been found, by experience, the worst of all other to digest; and *Sanctorius*, in his book of *Statical Medicin*, has declared, that they are the victuals by which we perspire least; and still less by Pork than the rest; and so, by the laws of *Perspiration*, it must be concluded to contain the grossest juices and the worst nourishment: but all this will be more plain and evident, than I could here, without a needless digression, demonstrate, if we consider the requisits for *digestion* and *nutrition*, which I have laid down very plainly, and in few words, when I purposely treated of that subject, in the beginning

ning of my *Æconomy of the human body*, printed laſt year, to which I refer you for a further information. Yet, after all, the bodies of ſuch working people, not only make the beſt of ſuch *ſolid* food; but this, ev'n, ſeems neceſſary for thoſe who are oblig'd to undergo ſo great labour; for tho the ſtomachs of ſedentary people, and of thoſe who uſe little exerciſe, are not able to reduce ſuch parched and ſolid food into *Chyle*, in twelve or fifteen hours time; and when that is done, this *Chyle* is ſo *thick*, that it is ſcarcely able to perform its firſt *voyage* thro the lacteal veſſels, but ſtops and makes obſtructions in thoſe paſſages, and diſpoſes ſuch people to *Dropſies*, the *Jaundice*, and other *Cachectical* diſeaſes. And even tho it ſhou'd eſcape theſe obſtacles, brought its full length, the *contraction* of the Heart in thoſe, and the *force* of their *Lungs* in the exſpiration are ſo faint, and moſt of their other Muſcles being ſeldom acted, the Chyle, as it is carried along their blood-veſſels, is not ſufficiently preſs'd, or broken into ſmall enough particles, that it may become homogeneous, at leaſt to our

ſenſes, with the blood; and ſo is apt to produce all thoſe *inconveniencies, groſſer blood* or *bodies* greater than the blood carried about in it, are ſaid to do: yet things being quite otherwiſe with our Sailers, and in one part of their buſineſs or another, ſcarce one muſcle of the whole body being left unimploy'd, their digeſtion and nutrition not only go as well on with them in this diet, as the moſt delicate food with Ladies; but this ſort of victuals is, even, neceſſary for their toyl and labour, and that which is finer and more eaſily digeſted, would not prove of long enough continuance for their work.

The conſequence of this victualling.

From what has been ſaid, 'tis evident, that the greater the work and labour is, in this way of living, the digeſtion and nutrition will be the better perform'd; the motion of the blood will be more exact, and the health of the Sailers will be more firm; and, upon the other ſide, the leſs their work is, the hardneſs of the food, and its ſaltneſs, will proportionably have their effects, and the indigeſtion that follows upon the one, and the fiery heat that attends the other,

other, will be the more ſenſible and conſiderable; and ſo, all this will fall more ſeverely upon the Seamen of the Royal Navy, than upon thoſe in the Merchant Service; becauſe their labour and work is abundantly greater than that of the Men of War: tho there is a ſort of remedy againſt that, in their other victualling, as we ſhall ſee hereafter; and in effect, none find the ſmart of this ſo much as the Boatſwains Favourites; for the moſt of them, eſpecially of the preſs'd Landmen, are very fit Theaters for this Tragedy, which is acted, indeed, to the life; and their caſe is juſt the ſame with that of the Ape's Puppies in the Fable; that which ſhe hates comes to be a luſty ſtrong Monkey, while ſhe overlays the other thro her fondneſs; the Seamen, whom the Boatſwain turns out to their watch, and who have the fatigue of the Ship, are in perfect health, while his Favourites are over-run with the *Scurvy*; which appears firſt in *red ſpots*, which afterwards become *blue*, and then *black*, upon the *legs* and *other* parts, with an extraordinary *weakneſs*, and beſides attended with a *redneſs*, *itching*, and

Is firſt the Scurvy.

rottenneſs of the *gums*, and a *looſeneſs* of the *teeth*; their pulſe all this while being very unequal, *i. e.* ſometimes *weak*, and ſometimes very *great*; and all theſe accompanied with a great many more ſevere ſymptoms ſingled out, and deſcrib'd by *Riverius*, and our learned Doctor *Willis*; which, therefore, I ſhall forbear to enumerate, but eſpecially ſince 'tis none of my deſign to write a Treatiſe of the *Scurvey*, but only to give ſuch illuſtrations, as may be uſeful for underſtanding our Sea Sickneſſes, and helping us in their Cure.

'Tis very evident from the heating properties of *Salt*, and eſpecially of its corroſive bittern, that 'tis *that* only, which can produce ſuch an extraordinary ſenſe of heat, as we find after a meal of ſuch victuals; and becauſe that heat cannot be produc'd, without a greater degree of *velocity* of the blood, and a greater *ſecretion* of animal ſpirits, which contract the heart, and produce this velocity; and they cannot be ſeparated without a greater *attrition* of the blood: therefore, ſince this *heat* is felt, it is this bittern of the Salt that makes this attrition, and

produces

produces this heat: now in this production, both the parts of the bittern, that divide and break the particles of the blood, and the parts of the blood *thus* broken and divided, poſſeſs a greater ſpace than when they were compact, and before there were other bodies added. So that, in this greater poſſeſſion of ſpace, rarefaction, and artificial *moles*, as we may ſay, the thinner, and more capillary veſſels have not coheſion enough to reſiſt this new bulk; but the blood breaks over its banks, and in as great a quantity as the force of the motion of the rarify'd blood, the greatneſs of the emiſſary, and the reſiſtance of the place, into which it breaks, will allow; ſo that if *this* be ſuperficial, if any great quantity is ſeparated, and the blood's motion ſo weak, that there is not matter enough perſpired, which both by its *quantity* and *force* may keep it fluxile, and carry off ſome of the ſmaller parts of the blood, thus let out by its own common motion; then, the blood, now fallen out, will corrupt after the ſame manner, we ſee *it*, when out of the body; having, always, reſpect to the *quantity* ſeparated, and the *place* where

where it is lodged, *i. e.* the blood being thus ſeparated, is in a ſtate of *quiet* and corrupts; and, in the different degrees and tranſitions in this corruption is *blue*, *black*, &c. as we ſee in this, and caſes of the like nature; only, it is longer a corrupting, becauſe of its ſmall quantity, the fluxility of the perſpiring ſteams, and the temper of the place; as we might particularly demonſtrate if it would not prove too long. And theſe mechaical intimations will take off the neceſſity of *abſorbing* that is ſo much talkt of in this caſe. Beſides, this way of the blood's poſſeſſing greater ſpace, may ſtill be augmented, if we conſider, that their victuals, we have juſt now ſpoke of, muſt needs breed very thick blood; which is not ſo eaſily broken in pieces, but rarifying in bulk, is more apt to ſtop, and by its ſtoppage to make a greater preſſure in its channels, and to produce the abovemention'd effects. And ſince the extraordinary ſpace is poſſeſt by this viſcid and rarify'd blood, the blood veſſels that are ſo fill'd, compreſs thoſe parts that are contiguous to them, and have leſs power to reſiſt, than their ſides have to go outward;

and

and therefore, in this ſtuffing of the Arteries in the *ſoft brain*, their ſides, thus bending outwards, will eſpecially preſs ſuch veſſels, that are touch'd by 'em, whether they are veins, arteries, or nerves; if their reſiſtance be leſs than the force that thruſts 'em out, and ſo the liquors ſtagnating in all thoſe, muſt preſs the neighbouring veſſels, and hinder the tranſmiſſion of their liquors, in proportion to thoſe powers by which they are preſt. Thus a ſmaller quantity will be carry'd along their cavity; and by reaſon of this compreſſion, the quantity of animal ſpirits that glides into the cavity of the nerves with an extraordinary weakneſs is diminiſht, becauſe their coats are depreſt, and their channels ſtraitned; ſo that ſince by their influx into the nerves, and derivation into the muſcles, their contraction is perform'd, and upon this the ſtrength of the whole body depends; then, in this ſmall diſtribution of the animal ſpirits, which is leſs than what is natural, the contraction of the muſcles is not ſo powerful as naturally it ought to be, and the *weakneſs* of the body *extraordinary*. Moreover, ſince the *heart* With an extraordinary weakneſs.

heart hath the ſame properties, and is ſubject to the ſame laws, with the other muſcles; and *they* being more weakly contracted, becauſe of a leſſer quantity of animal ſpirits, that are deriv'd into them; ſo muſt the heart be more faintly contracted too; and ſince, by the conſent of Phyſitians, and the evidence of reaſon, the *motion* of the *blood* depends upon the *ſtrength* of the hearts contraction; the contraction of the heart being weaker, 'tis plain, that this confus'd mixture of viſcid and rarify'd blood, will have but a very weak motion; which is continu'd in the blood, till its return to the heart, bating what it has communicated, in its circulation, to the *arteries* and *blood* to be propelled; but ſince it is ſtill loſing part of its motion, the further it goes from the heart; the blood will be, on all occaſions, apt to ſtagnate in the ſmaller and remoter veſſels; and ſo produce thoſe *red, blue*, &c. *ſpots*, we have ſpoken of. Beſides, ſince the Pulſe is only occaſion'd, by the greater quantity of blood propell'd into the narrower ſections of the arteries; and this impulſion depends upon

upon the contraction of the heart, as we have ſaid; therefore becauſe, in this heated and rariſy'd blood, there is ſometimes a greater, and ſometimes a leſs quantity of animal ſpirits ſeparated; and ſince the contraction of the heart depends on their ſeparation and influx, that will be ſometimes greater, and ſometimes weaker, and ſo the protruſion of the blood being ſometimes perform'd in a ſhorter time, and ſometimes in a longer, and in a greater or ſmaller quantity; conſequently, the Pulſe will be *quicker* and *ſlower*, *greater* and *weaker*, as we find by experience. Becauſe the blood is thus viſcid and rarify'd, and apt to ſtagnate in the capillary veſſels, eſpecially in the remoteſt parts; and while 'tis thus ſtopt by a greater power of obſtruction, than the following blood has power to drive it forwards, the ſucceeding blood coming to the place, and not being able to propel the ſticking blood, nor to recoil, becauſe of the Impetus of the blood that ſucceeds it; it ſtagnates too, and encreaſing in quantity, diſtends the ſides of the veſſels, in which it ſtopt, to their utmoſt extent. If thoſe veſſels are

And an unequal Pulſe.

ſuperficial

superficial and visible to the eye, th
blood will shine thro in its ow
Their Gums inflam'd, colour; and because the Gums ar
such, when they are thus stuff'd, the
appear swell'd and *red*. And sinc
the liquors that are thus slowly pro
pell'd, and subsist, and are wholl
obstructed in some parts, the part
where this total obstruction happens
Rotten and stinking, are *ulcerated* and *stink*; for the stagna
ting liquors are entirely corrupted, and
become too sharp and weighty fo
their channels, and so break thro
us in ulcers. But if, before this tota
stoppage and obstruction, the part
of the blood now greater than ordi-
nary, can be carried thro those
parts by way of perspiration; yet in
their passage they effect the pores, rub
upon them, and produce that sense of
And Itching. *itching*, which sometimes provokes us
to scratch those parts; and, by the
bleeding that follows upon that, we
frequently prevent a more sudden ob-
struction. Yet, in all this misfortune,
the Teeth losing their security, must
needs become *loose*, and fall out. Tis
from this viscid and weaken'd state of
the blood, that we see such swellings
of the legs, in chronical diseases, espe-
cially

ally in the evening, after it is some-
what weakned, by the little exercise
our bodies have in the day; while it
cannot climb up, in its return to the
heart, the steep precipices of our legs,
but stops and begets that swelling we
feel in the evening; till by the ad-
ventitious warmth of the bed, and the
direct posture of our legs, it goeth off
again against morning. After the
same manner, by considering the con-
dition of our other liquors, and their
motion, I could demonstrate their
depravation, and explain, (tho at too
great a length for this place) the other
symptoms that appear. But seeing they
may be brought from these fountains,
which I have sufficiently dwelt upon;
I think, I have said enough to explain
the way, how this sickness is produced
with us, and to show that 'tis a
necessary consequence of an idle
life, and of feeding on *Salt Beef*
and *Pork*; and therefore I shall pro-
ceed to the next proposition, I laid
down. Only, I must put you in mind,
that I am not for confounding this
distemper with the *Melancholia Hypo-*
chondriaca, as *Riverius*, and some other
Authors do; which makes us call
every

The *Scurvy* and *Melancholy Hypochon.* are not the same.

every ſickneſs a *Scurvy* or *Scorbutical*; becauſe there are ſome ſymptoms common to both: For if this principle were allowed, we could have no diſtinct notions of diſeaſes, but they would all be involv'd in one confus'd and inextricable Chaos. Thus, for example, we frequently ſee *vomiting* in *Fevers*, *Scurvys*, the *Iliac Paſſion*, the *Stone in the Kidneys* or *Ureters*, a *Fall*, and many more; yet would it not be thought ridiculous to ſay, that a *Fever* is an *Iliac Paſſion*, the *Stone*, a *Fall*, &c. tho they are both attended with vomiting. And (which is worſe) this would prove very fatal in the curing of diſeaſes: and therefore it were to be wiſht, that all diſeaſes were exactly deſcribed, brought under certain Claſſes, and confin'd to their reſpective Families and Tribes. I cannot upon this occaſion omit, what the moſt expert Phyſitian Dr. *Sydenham* ſays on that ſubject, in the 307 page of his *Practice of Phyſick*, printed at *London*, in the year 1685, in the 5th Chapter of that Book, of the Rheumatiſm. '*Hic enim* (ſays he) *obiter*, '*ſed & libere tamen dicam, quod licet* 'nullus *dubitemquin* Scorbutus *in his Plagis*

'*Borea-*

Borealibus revera inveniatur, tamen eam morbum non tam frequentem, quam vulgi fert opinio, occurrere perſuaſum mihi habeo; multos autem ex iis affectibus (ne plurimos dicam) quorum nomine Scorbutum *incuſamus, vel morborum* ſientium *nondum vero* factorum, *quique nullum adhuc certum induerunt typum, effecta eſſe; vel etiam infelices, reliquias morbi alicujus nondum penitus devicti, a quibus ſanguis, cæteriique humores contaminantur*, v. gr. &c. By the way I muſt obſerve, that tho I doubt not but the Scurvy is really to be found in theſe Northern Countries; yet, I am perſwaded it is not ſo very frequent, as 'tis commonly imagined; but that many of thoſe diſtempers (if not the moſt) we aſcribe to the Scurvy, are either the effects of *approaching* ills, not yet form'd into diſeaſes, or the unhappy relicts of ſome unconquered ſickneſs, which ſtill pollutes the blood and other humours, *v. gr. &c.* 'Tis true, the learned Dr. *Willis* has ſpoke a little more diſtinctly, when he calls the one a *cold*, and the other a *hot* Scurvy: but in this, he has too much ſacrific'd to the humour of the Ancients, ſince the *laſt* only de-

deserves that name, and the *other* does not, really, differ from the *Melancholia Hypochondriaca*. Of all Men, I have the least inclination to dispute about *words*; but if *things* were better settled by proper *definitions* and *names*, we should not fall into so many mistakes; and there's nothing more common, than to see people catching hold of some words, that are apt to mislead them in their practice; for instance, besides the Banter of *Openers*, *Malignant*, and the like, who does not, but at the name of Scurvy, immediately fly to *Scurvy-grass*, *Watercresses*, and *Horse-radishes*; but to what advantage, may be easily understood by our foregoing Theory, and is fatally felt by such as are truly Scorbutical; But I'm afraid I have wander'd already too far from my subject. And I shall proceed to the next thing to be consider'd in order, which may be sufficiently and easily understood, from what I have said of the preceeding two.

Their Bread. The next thing I shall consider is their *bread*, of which every man is allow'd one pound a day. Moderate eating of bread has, in all ages, been esteemed

eſteemed to contribute very much to the preſervation of our health, tho none have approv'd of *quantities. Omnis Repletio mala, panis peſſima*; a ſurfeit of any thing is bad, but one of bread is the worſt: its ſubſtance is tough and tenacious; and therefore is not ſo eaſily broken and divided by the ſtomach, and if eaten at any time in a greater quantity, than is ſufficient to give a body to the Chyle, it is very apt to make way for obſtructions, and to breed very thick and groſs humours. But an entire abſtinence from bread deprives the Chyle of that due and neceſſary body, that is requiſite to make its paſſage flow enough thro the Guts, that it may be the better thruſt into the *indiſcernible* doors of the *lacteal veſſels:* and therefore, in ſuch a famine and ſcarcity of bread, the body is depriv'd of thoſe juices that are made of our victuals, beſides *gripings*, moſt troubleſome *looſeneſſes*, and ſuch other ſickneſſes as attend them. Having ſpoken thus much of bread, in the general, I ſhall neither pretend to determin the ſufficient quantities of bread that are to be eaten, nor enquire, whether the crumb

or

of crust of bread are the most wholsome. For these questions are not proper for this place; since all that concerns us, is the consideration of the effects our *Sea-bisket* may have upon their bodies, who are oblig'd to make it a part of their daily food.

First then, a pound of *bread* so *dry* and *solid* as that must be, that it may be the fitter for keeping, if it were brought to the *consistence* of *common bread*, would at least be thrice as big as it is, while in Bisket; which, I'm apt to believe, is a little too much for men generally to eat. Besides, after it is ground by the teeth, and sent into the stomach, 'tis extremely hard to be digested, if it be not very fine; and if fine, it so imbibes the small quantity of Chyle, that is made of the other victuals, that the mass of blood receives a very small quantity of it; and that mash which passeth the guts, where the lacteal vessels are inserted, is so hardned and compact, that people upon that diet but seldom trouble the Stool; which every one knows to be of very ill consequence, and especially at Sea. From what has been said, 'tis not only evident, that the

the abovementioned victuals, are not fine enough to produce those ſubtile animal ſpirits, that make people ſo eaſily advert to, and apprehend at ſight, whatever is propoſed; and ſo, not fit to make Wits: but by the groſsneſs of their humours, the Seamen are diſpos'd to moſt Chronical Diſeaſes, ſo ſoon as they are in the leaſt overcome with idleneſs and lazineſs: tho, otherwiſe, all the inconveniencies that happen, are exceſſive *coſtiveneſs*, that troubleſom attendant of our ſickneſſes. So that we may ſay, that a little too much eating of ſuch bread, not only thickens the humours too much, and ſo diſpoſes our men to other ſickneſſes; but immediately produces that dangerous *coſtiveneſs*, which is apt to produce ſo many other Maladies, and always obſtructs the cure of Fevers. For when our Inteſtins are ſtuff'd with a great many days victuals, they are ſo diſtended, and the blood veſſels in them ſo preſt or ſtraitned, that the circulation through them is very much interrupted, and not only the blood that us'd to flow that way, but even that of the neighbouring parts is forced

forced from its channels, and equally filling the channels of the reſt of the parts of the body, that have leſs reſiſtance, in ſome degree preſs the Origin of the Nerves in the Brain, and blood veſſels of the eyes; and ſo produce that *Stupor* and *Thickneſs* of *Sight*, people frequently feel in that caſe. Beſides the Chyle muſt needs be very much interrupted, and kept from being convey'd in a ſufficient quantity for recruiting the maſs of blood, by the preſſure of the lacteal veſſels, which are interwoven with the guts: for the Chyle is forced along the whole length of the guts, with the groſſer maſh; and ſo, the body is not only depriv'd of its neceſſary nouriſhment, but there's an eminent hazard of obſtructions in the lacteal veſſels, which very often produces thoſe dangerous Aſcites's that are ſo ſeldom cur'd.

Their Burgoo.

Touching their *Oatmeal victuals* (or Burgoo) which of it ſelf is very fit to correct that thickneſs of the humours and coſtiveneſs, that are the unavoidable conſequences of the abovemention'd diet join'd with the leaſt idleneſs: for Oats being of a thin ſubſtance, and of all the grains we uſe

for

for victuals, that out of which the greateſt quantity of oyl may be drawn, they not only preſerve that motion, that's requiſite to make a due perſpiration, by adding ſpirits to the blood, but preſerve it in a convenient degree of fluxility; and by their cleanſing power and vertue to keep the belly open, this Burgoo victualling is highly neceſſary for our ſeafaring people. Yet, 'tis the leaſt lik'd of all their victuals becauſe of the ſmall quantity of Butter, they pretend is allowed them to ſawce it: and therefore perhaps 'twere worthy the conſideration of thoſe, to whom it belongs to order this ſupply, and who are every way ſo careful of the Seamen, to ſee whether an addition in their Butter might be allow'd; for I am ſure, that if that part of the victualling were made more grateful and agreeable to the Sailers, 'twould infinitely contribute to the preſervation of their *health*. What I have ſaid on this ſubject, is in a great meaſure applicable to their Peaſe, which in their own nature are more temperate than Oatmeal, ſince they are eſteem'd by Phyſicians, and the learned *Galen*, 1 *De Aliment. Facultat.* Their Peaſe.

tat, *Cap.* 21. A ſort of medium between things of good and bad nouriſhment. And therefore I ſhall proceed to the next conſideration I propoſed, which was concerning their *Lodging*.

Their Lodging. This is as convenient, warm and eaſy, as may be at Sea, and for ſuch a number of men; yet what by the pilfering of Hammocks one from another, their lying on Deck, or betwixt Decks, when they are pretty warm after a Can of Flip; and the preſt Mens real want of Cloaths, they ſenſibly contract a cold, which is the beginning of moſt of their miſeries. 'Tis not neceſſary, I ſhould demonſtrate here, the *way* how that is catcht; ſince 'tis evidently ſo by that *heavineſs* they complain of, pain of their *breaſt*, *ſoreneſs* in their *bones*, and ſuch other ſymptoms, Phyſicians have determined to be the conſtant attendants of a Cold. But ſince I ſhall have occaſion afterwards to treat more particularly of this ſubject, I ſhall at preſent content my ſelf with putting you in mind, that I have already demonſtrated in another place, and have put it beyond exception, in the judgment

judgment of very many, that *there is no power in the Air*, different from its *weight* or *gravity*, able to produce thoſe ſymptoms, that are ſaid to follow upon obſtruction, or ſhutting up of the pores, when we *catch cold*, and ſo may diſturb and interrupt perſpiration, and breed ſo many fatal diſtempers, which 'twould be needleſs to inſiſt upon in this place, ſince the thing is generally agreed upon; yet I cannot forbear obſerving, that an untimely uſe of *Sweating Medicines* in ſome, and thickning *Lozenges* in others, is more frequently the productive cauſe of Fevers, Phthiſicks, *&c.* and of more fatal conſequence than a Cold could have been, if left to the *ſtrength* of the blood and *abſtinence*, without employing any other Auxiliaries; but more for the confirmation of this, may be eaſily collected from what follows in this Diſcourſe. I ſay, then, ſince ſo far is already clear; and becauſe too, the force of the perſpiration is only kept up, by a certain impetus and degree of the velocity of the blood, and *that* is only interrupted by the falling or diminution of *this*, 'twould be an eaſy task to give a more

genuine and conceivable account of catching cold, than is generally aſſign'd to be done by (I don't know what) nitroſity or nitrous power in the Air; which, upon various occaſions, Authors make uſe of for making the blood fluxile and tenacious, two very different effects; tho 'tis fit for neither, as I have already prov'd in its proper place. But I ſhall content my ſelf at preſent with enumerating thoſe ſymptoms, that conſtitute the eſſence of a cold, and then proceed to conſider the effects of this, by the different ſymptoms that naturally attend it.

Since then, I find 'tis agreed on by all Phyſicians, that perſpiration in a catch'd cold, is not ſo free as in a natural ſtate, but is interrupted; and a great deal of that ſubſtance, that is uſually ſep rated that way, is detain d in the maſs of blood! That which is ſo detain'd, will proportionably encreaſe its bulk, and fill the veſſels; and ſo becomes the ſource of all thoſe ſymptoms that are obſerved to attend a catch'd Cold, by a neceſſary conſequence I ſhall afterwards have occaſion to demonſtrate: The Symptoms that

that uſually appear in this caſe are theſe, and in this order. Firſt, a *weight* or *heavineſs*, a *pain* in the *breaſt*, a *leſs activity over all the body*, *ſudden weakneſs*, a *coldneſs in all the extremities* except the *Brain*, *Coſtiveneſs*, *ſuch a pain in the bones, as when one is beat*, a *weak*, *ſunk*, and *depreſſed Pulſe*, ſometimes accompanied with a *great inclination to ſleep*; in a day or two the *Pulſe* is *great* and *ſtrong*, they become very *warm*, *reſtleſs*, and *thirſty*; the *tongue* is *dry*, *black*, and *rough*, the *breathing* difficult, the *breath* ſtriking thoſe that ſtand near the ſick perſon like *Fire*; they are *delirious*, cannot *ſleep*, and their ſickneſs is terminated in *Death*, by *Sweating*, *Hemorrhagie*, *Looſeneſs*, &c. The Symptoms of our Fevers.

Having thus enumerated theſe ſymptoms, that appear conſtantly in our Fevers, and in the ſame order in which I have rank'd them: I ſhall now endeavour to evince the neceſſity of their attending an interruption of perſpiration, as I intimated before; and hereafter I ſhall endeavour to demonſtrate, that that *fulneſs*, which gives riſe to all theſe appearances, is more eſpecially to be attributed to an interruption of perſpiration than An Hypotheſis.

any other cauſe; and ſo the *Hypotheſis*, tho own'd by every one, will be more than one that is *merely* ſuch.

Firſt then, an interruption of perſpiration will encreaſe the *Moles* or bulk of the Fluids, proportionably to what is left unexpell'd, of the quantity which uſually paſſeth thro the pores; and becauſe *Sanctorius* in his Statical Medicin, has taught us that we perſpire, according to the different conſtitutions of our bodies, about forty, fifty, or ſixty ounces in 24 hours; therefore if but a ſixth part of this be detain'd, as I could prove it to be; it muſt needs produce a very great Plethora in a day or two, in ſuch that were in perfect health before, beſides the addition may be ſuppos'd to be made by our daily food, and, perhaps, rarifying liquors. The blood upon this conſiderarion admitting of a vaſt augmentation, diſtends the ſides of its Channels, is more unfit for motion, and preſſeth the neighbouring parts, and ſo may eaſily produce the ſenſe we have, and very often complain of an unnatural weight: for in this weight or heavi-

neſs

neſs we have the ſame ſenſation, as when loaded under a great burden, and therefore in this, the parts are the ſame way affected, as when a weight preſſes our body; but by this weight, the Membranes, Nerves and Muſcles are ſo preſt, and the Bones ſo forc'd into their Joinings, that they could not ſubſiſt, if it were not for the violent *Niſus* of the Muſcles; neither could thoſe Muſcles be contracted, but by a more abundant influx of the animal ſpirits overcoming this preſſure; nor could they be propell'd thro the compreſſed Nerves, unleſs they were puſht on by a greater force; and by this greater force is known that by which is meant to *preſs*; and therefore 'tis evident, that the blood thus filling its veſſels, may eaſily produce that ſenſe of *Weight*, as was ſaid. The blood, while in this fulneſs, becauſe of its bulk and the viſcidity it contracts, by this ſtagnating fulneſs, both in its own nature, and by reaſon of the diminution of its motion, is not ſo capable to ſeparate its ſubtile parts or animal ſpirits, becauſe it is not ſo well divided or broken into ſuch ſmall particles. Now

The weight or heavineſs.

ſince the abundance and ſeparation of the ſpirits in the brain, are neceſſary for the motion of the muſcles, upon the contraction of which the ſtrength and activity of the whole body depends; 'tis plain that in ſuch a caſe, where the motion of the blood is ſo languid, and the ſecretion of the animal ſpirits ſo ſmall; there will be a lazineſs and a *diminution of activity over all the body.* And becauſe this artificial Plethora, that leſſens the activity is very ſudden, *i. e.* in two or three days, this *leſs activity* will be ſudden too, or a *ſudden weakneſs* will happen; which was to be ſhown. When the blood is thus ſtopt, and become very viſcid, 'tis evident that the body muſt proportionably want of its warmth; ſince that is only an effect of the greater liberty the ſmall parts of the blood, that make the heat, have, to diſperſe themſelves over the body; and this liberty is procur'd by the parts of the blood in their motion, juſtling and breaking each other into ſmaller parts. But the blood being viſcid or tough, is not ſo eaſily, in its nature, broken and diſſolved; and therefore the warmth is ſtill more violently

Leſs Activity.

Sudden Weakneſs.

violently lock'd up and confin'd. Moreover, while the blood is ſo viſcid, its motion is ev'n ſlower than naturally it ſhould be; and conſequently the heat is leſſen'd, and the blood not ſo well divided, becauſe the breaking of it into ſmaller parts depends upon its motion. So that according as the motion is diminiſhed, and the force of the viſcidity greater, the *coldneſs* is proportionably greater *over the whole body:* and becauſe the blood hath its motion from the heart, and in its whole journey round the body, is ſtill loſing part of that motion, (for the reaſons aſſign'd before) more or leſs in reſpect of the wideneſs of the veſſels thro which it is propell'd, and their diſtance from the heart; therefore 'tis evident, that that *Coldneſs* will not be ſo ſenſible in the parts that are nearer the heart, or about the heart it ſelf and the Thorax, as in the parts that are more remote or the *extremities* of the body; for, not only for the reaſons we have juſt nam'd, this Coldneſs is firſt felt in the parts that are furtheſt from the heart, but the motion of the muſcles in the extremities is not ſo ſtrong; and

Coldneſs over the whole body.

therefore they do not ſo powerfully preſs the blood that glides thro thoſe veins and arteries, that go to the compoſing of theſe muſcles, as in the other muſcles, whoſe contraction is perform'd with greater force and energy; And conſequently the blood too, will be more apt to ſtagnate in thoſe remote parts than in the *other*; ſo that this *coldneſs* will be more ſenſible in *them*, as was aſſerted. Moreover, the veſſels in thoſe remote parts, growing always ſmaller and ſmaller, the further they go; this thick blood will be propell'd with the greater difficulty thro theſe veſſels, than if they were wider; beſides, that by reaſon of the *Glewineſs* of this rough and thick blood, 'tis more apt to ſtick to the coats of the veſſels; and ſo more ready to ſubſiſt and to produce the abovemention'd coldneſs; but tho this coldneſs is more apt to begin in the *extremities*, than in any other parts, and tho there are a great many ſmall arteries in the *Brain*, as well as in the other parts; yet this coldneſs will not be felt in it ſo ſoon as in them, becauſe the arteries are but ſhort, and ſoon diſcharge themſelves

A Coldneſs in all the extremities.

ſelves into the wide *Sinus's*; ſo that, tho the blood is very apt to ſtagnate, and produce that coldneſs in the extremities; yet that happens not ſo ſoon in the *Brain*. Now, the real continuation of this coldneſs over the whole body, may be very well conceived, if we conſider, that while the blood is thus ſtopt in the capillary arteries, we can aſſign no time in the whole circulation, in which a leſſer quantity of blood flows not from the arteries into the veins, than would have flown in a natural ſtate; and therefore a leſſer quantity of blood flowing more ſlowly, in the ordinary time of the circulation than is naturally uſual, there will a leſſer than a natural quantity come into the heart in every contraction; and this ſmall quantity will not fill the arteries in that proportion, that is neceſſary to force it forward, ſo as to break and divide it, and to diſplay its heat. Beſides the blood being in this tough and viſcid condition, there will ev'n be fewer of its fine and ſubtile parts ſeparated in the Brain, and diſpos'd of into the muſcles of the whole body; and the heart in courſe will have a fainter

Except the Brain.

fainter contraction, and a weaker power to propel the blood, which conſequently will not be ſo well divided, nor the heat ſo well diffus'd. Now ſuppoſing that this Lentor or Toughneſs could conſiſt with the natural motion of the blood, and that the viſcidity could not be broken or diſſolv'd by the natural motion, it cannot be expected it ever ſhould by a degree of motion, much below that which is natural; and therefore this ſenſe of cold muſt be felt in the other parts, and over the whole body. Pain is nothing elſe but a *ſolution* or *disjoyning* of *continuous parts*, and while the blood ſtagnates, and its quantity is conſtantly augmented, it muſt needs diſtend the ſides of its channels, where it ſtops, and ſtretch the arteries beyond their ordinary pitch. And therefore thoſe veſſels, that have not a natural or an adventitious reſiſtance to oppoſe this forcing outward of the blood, will have their parts diſunited, *i. e.* this ſenſe of *pain* will be produc'd in them. Now, the bones in themſelves are not affected with pain, neither is there any ſuch ſenſation produc'd in them, but by the membrane,

& Pain

brane, that ſurrounds and inveſts them; called the *Periostium*: 'tis evident, that becauſe this may be affected with any ſort of pain, the bones are ſaid to be thus affected; and in *beating* there are great contuſions, *i.e.* the veſſels have their ſides ſo preſt, by the weight and motion of the inſtrument, by which theſe contuſions are made, that the blood either circulates very ſlowly, or not at all in thoſe ſections of the veſſels ſo compreſt. And the *Periostium* is either ſo preſt by the contus'd muſcles, that this feeling is produced in it; or, having its veſſels a little compreſt, the ſubſiſting liquors in the compreſt part do ſtop the ſucceeding liquors in the ſame channel, that they actually protrude the ſides of their veſſels, and make this ſenſation of pain: And ſince the blood in this accidental fulneſs and viſcidity may affect the veſſels after the ſame manner, 'tis but natural to conclude, that ſuch a *pain, as when one is beaten*, may be produc'd in this ſtate of the maſs of the blood. The blood in this ſtate of viſcidity, is leſs capable of ſeparating its fine and ſubtile parts, as has been ſaid; and there being a leſs

As when one is beat.

quantity

quantity of them, the contraction of the whole muſcles will be ſo much the weaker; and conſequently, ſince the heart gives the greateſt force to the blood's motion, and its contraction being weaker, the blood will be ſqueezed out of the left ventricle into the Aorta, and thro the whole ſeries of the Arteries, with leſs velocity; and therefore cannot diſtend the ſides of the Arteries, with that force that is uſual, but affects our touch more weakly; ſo that the *Pulſe* is *weak* in this ſtate of the blood: for the ſame reaſon thoſe ſpirits being produced in a leſs quantity, and longer in falling into the muſcles, and their contraction not being ſo frequent: Now the motion of the heart and arteries being ſynchronical, *i. e.* the contraction of the firſt, and the filling of the ſecond, being perform'd at the ſame time, ſince the contraction of the Heart is not ſo frequent, the ſides of the Arteries are not ſo frequently forced outward, and ſeldomer affect our touch, *i. e.* the pulſe will be that which we call a *Rare Pulſe*. The blood too, in this its thick and viſcid ſtate, is leſs attrited and leſs fluxil, as has been

A weak Pulſe.

A Pulſe that's rare

been ſaid; but its parts being thus penn'd up and compact, cannot poſſeſs that ſpace it did, when its parts roll'd more freely one upon another, and were kept at a greater diſtance, by the impulſe of its ſubtile parts; and therefore it has not force enough, to ſuſtain the weight of the ſides of its Channels, and they falling cloſer one upon another, diminiſh, as to their bigneſs, ſenſibly, and even to our ſight; ſo that they being thus contracted, ſhrunk, and as 'twere withdrawn from our touch; and the pulſe being thus removed, is ſaid to be *depreſſed, ſunk, &c.* While the blood is ſo viſcid, and the contraction of the muſcles ſo weak, ſo few animal ſpirits ſeparated, and all the ſecretions almoſt ſtopt; the muſculous Coat of the Stomach will loſe a great deal of its force, and the liquor of the Stomach will be ſeparated in a leſs quantity; the contraction of the Ventricle is not only weaker, but our victuals that are lodged there, are not diſſolv'd, attrited and turned to Chyle; but putrifie and remain undigeſted; and therefore the Stomach being conſtantly full, there can be no

And depreſſed.

ſenſe

A Want of Appetite,

ſence of *hunger*, as our experience tells us. The ſame Unactivity and want of contraction, we find in the muſcles of the ſtomach, are felt, for the ſame reaſons, in the muſcles of the inteſtines; ſo that their vermicular contraction being much abated; whatever is contained in their cavity, will not be ſufficiently compreſt, that it may be protruded thro the whole proceſs of the guts; beſides their incapacity in reſpect of the excrements, that are contained in them; for theſe excrements being in a very ſmall quantity, both becauſe of the ſmall ſupply that is ſent from the ſtomach, and yet ſmaller from the blood, by the known paſſages; they want of that weight, that is neceſſary to overcome the conſtriction of the muſcles of the Anus; and little or no ſecretion being made into the guts from the blood, there's ſomewhat wanting of that due fluxility for their eaſier propulſion thro the inteſtines, beſides what excrements ſo fluxil may be ſuppos'd to do by way of Stimulus; ſo that upon all theſe accounts, eſpecially by the help of our Bisket, as has been ſaid, there will be a vaſt

diſpoſition

diſpoſition to *coſtiveneſs*. Laſtly, if at any time the blood is ſo viſcid, that it is even interrupted, or has a great deal ſlower motion in the brain than is uſual, and keeps the coats of the arteries bent outward; then, both becauſe of the ſmall ſecretion of ſpirits there, and the arteries compreſſing the origin of the nerves, there cannot be a ſufficient quantity of ſpirits derived thro theſe nerves; and conſequently is produced that *Stupor* or *Sleepineſs* we ſometimes obſerve. Now ſince the warm parts of the blood are confin'd and penn'd up in its viſcid parts, and if they be ſo preſt, that the force of this preſſion (together with the natural force, that the ſmall, hot, and fiery particles have to extricate themſelves) be greater than the power that confines them; theſe hot particles will at laſt break out, and running along by the ſenſible parts, excite the ſenſe of heat; and ſeeing this viſcid blood ſtagnates and ſtops in the ſmall arteries, they are ſo ſtuff'd up with that conſtant ſupply, that is made in the parts where it thus ſtagnates, that this compreſſion will be very conſiderable, by the blood that

And Coſtiveneſs.

Sometimes a Sleepineſs.

is

is conſtantly added, and by the power of contraction in the arteries, that hinder this ſtuffing and bending outwards of their ſides; ſo that this compreſſion being continually augmented, at length its power will become greater than the power of coheſion betwixt the viſcid and ſmall parts of the blood; and ſo the heat will be extricated, and give its ſenſe to the nerves: and after that ſome part of it is ſet at liberty, and moves to and fro with all freedom, it muſt mightily facilitate the ſetting at liberty of the other ſmall parts from the viſcid parts of the blood, by wedging themſelves into them, and breaking their continuity; and making the viſcid parts themſelves more fluxil. Now ſince the hot and warm parts of the blood are delivered from their confining viſcid parts; becauſe the power of compreſſion is greater than the power of coheſion, which proceeds from that viſcidity; and ſince the power of compreſſion is proportionable to the velocity of the blood, and its velocity is greateſt in theſe arteries that are next the heart; the power then of compreſſion in

thoſe

thoſe arteries, that are next the heart, will be greater than in theſe that are more remote, *i. e.* the heat will be felt in the parts that are more remote from the heart, or the extremities, a great while after 'tis felt in the parts that are nearer the heart, and they have been warm; and the coldneſs in the remote limbs, after the reſt of the body has been warm, may laſt even till the power of compreſſion in their arteries be augmented by the continual afflux of blood, and is able to ſubdue the force of the viſcid and intangling parts; and ſince theſe two powers are uncertain and undetermined, there can be no time aſſigned, wherein this coldneſs may laſt in the remote limbs, after the reſt of the body has been hot; only we may aſſert, that the coldneſs will laſt the longer in the extremities, the more viſcid the blood is, and the more firmly and cloſely it envelopes and confines the heat. Thus a great deal of heat being ſet at liberty, it is derived with the other parts, that can eaſily be diſſolv'd and are more fluxile, into the veins; and therefore this heat being more free, rarifies and warms the blood it meets with in the veins,

They are very warm.

veins, and excites *a great ſence and feeling of heat over all the body*. The heat then proceeding thus, the blood is more free, moveable, warm and rarified; and conſequently the arteries are fuller, and diſtend their ſides further, and ſo ſeem to riſe up out of the fleſh, and to come nearer the skin: and the veſſels being fuller, the pulſe will alſo feel greater; and becauſe the blood is now more than naturally warm, more perfectly diſſolv'd, and carried in a greater quantity to the Brain, there is alſo a more plentiful ſecretion of animal ſpirits, which coming into the heart in a greater quantity and degree of determination, make its contraction the ſtronger, and conſequently propel the blood thro the veſſels with more force, and diſtend more ſtrongly the ſides of the arteries, and produce that ſort of *Pulſe* we call *ſtrong*: ſo that tho the Pulſe in the cold fit was not to be felt, either becauſe the blood was not propell'd thro theſe parts, where we obſerve the Pulſe, or propell'd with leſſer velocity than was neceſſary to affect our Touch: yet the velocity being recovered, the blood circulates thro

Their Pulſe great and ſtrong.

thro theſe parts again, affects our Touch, and makes the Pulſe *great* and *ſtrong*, as has been ſaid: If we conſider in the next place, the extraordinary warmth of which our Patients complain, we ſhall not need to have recourſe to any unnatural contraction of the muſcles to account for their Reſtleſsneſs, and continual toſſing about the Bed; but if we remember either what incites our ſelves to it, or what our Patients tell us induces them, we may very fairly account for that ſymptom; and this is nothing but a conſtant deſire to remove into thoſe places we had not lain in before, for a relief to our ſcorching heat; and ſo as we warm in one place, we caſt about and tumble into another, which is truly that *Reſtleſsneſs* we may obſerve. Moreover, in this extraordinary heat there is a leſs ſecretion of ſpittle, and that which is ſeparated is immediately exhal'd by this unnatural heat; and therefore the *tongue* and all that neighbourhood being very dry, the ſenſe of *thirſt* is felt; but becauſe of this dryneſs, and the particular contexture of the tongue, which has its fibres run-

They are reſtleſs,

And very dry.

running acroſs in its compoſition; Theſe fibres *riſe*, *ſtare*, are *ſtiff* and *rough*, and appear to our touch as if we run our fingers over a grater, ſo ſoon as it is depriv'd of its humidity; and while the fibres and blood veſſels ſtare thus, they cannot be eaſily contracted, and ſo the parts of the blood that are drier, cannot move, but ſtagnate under the ſurface of the *tongue*, while its more fluid parts are preſs'd forward; and the parts of the blood, that are thus ſtopp'd, being of a high red colour, appear very eaſily to be *black* and a little inflam'd. And if this heat increaſes naturally or by Art, 'tis evident, that the blood will be mightily rarify'd, and flowing thro the *lungs* in this great and rarify'd quantity, 'twill preſs them violently on all ſides; ſo that they will not be ſo eaſily expanded, and therefore the *Reſpiration* will be alſo *difficult*, and the ſmall quantity of Air, that is received into the unexpanded lungs, being warmed with the hot blood which then circulates thro that part affects us ſo, when expir'd, as the Air of a Chamber that is agitated, by the ſmall parts of our fires, that move

Their Tongue is rough

And black.

The Reſpiration difficult.

move among it, and this affects us with heat; ſo the breath of thoſe ſick, ſtrikes thoſe that ſtand near like *fire*. Seeing the blood is driven about in ſuch a hurry, the animal ſpirits ſeparated in ſo great abundance, the blood ſo very fluxile, and theſe ſpirits running thro a great many different Tracts in the Brain, preſent to us ſo many different Ideas, according to which we expreſs our ſelves; and they being different, and of ſeveral ſorts, our thoughts are found very incoherent and unconnected, which is to *Rave*, or to be *Delirious*. That *watchfulneſs* too we daily obſerve, proceeds from theſe live repreſentations, and velocity of the blood and ſpirits. And ſince in all the ſtages of this Illneſs, there either may be too great a diſtenſion of the blood-veſſels in the Brain, and ſo no ſpirits deriv'd into the Nerves, which will entirely deſtroy the contraction of the Heart, and bring *Death*; or the blood may be in ſuch a condition, that it can give no ſupply of ſuch ſpirits; and upon this account too, there can be no contraction of the heart, no motion of the blood, which is the want of

Their Breath's like fire.

They are delirious, and cannot ſleep.

They end in Death.

of life it ſelf: and in both theſe reſpects 'tis evident, how *Death* may be the fatal conſequence of this ſickneſs; for in the firſt, the blood being either very viſcid in the cold fit, or extremely rarify'd in the hot (by the patients own conſtitution, the heat of the place where he liveth, or warming Medicins) is ſo interrupted in the Arteries of the Brain, and being augmented by the ſucceeding blood, it may diſtend the ſides of the Arteries, and produce the named effect; or if the blood in the cold fit is ſo viſcid, and confines the ſpirits, that they cannot be ſeparated, or there be a real want of ſpirits in the blood, which turn to the ſame account; there can be no ſecretion of ſpirits, where there are none; and therefore there will none be derived into the Nerves, for the motion of the muſcles, and contraction of the heart. By the by, 'tis no leſs evident, that when the blood is thus infinitely comminuted, and ſtill broken down into parts leſſer and leſſer, by an indiſcreet management, and want of drinking of ſomething, that may be a body to the ſpirits; the blood is not only de-

depriv'd of that Serum, that ſhould have preſerv'd its fluxility, and been that Body, but of its ſpirits too, and ſo muſt needs produce the fore-going effect, and make this melancholy tragedy end at laſt in *Death*. Laſtly, ſince the ſick muſt continue in this condition, ſo long as the ſtate of the blood is in this way, and ſeeing thoſe parts, which are thus broken in this motion, may be carried off by the Glandules of the Skin, breaking open of the pipes, by the Inteſtins, *&c.* and by theſe means the blood may be rendered more compact, and equal in its motion: therefore 'tis plain, that this *Sickneſs* may be *judged* by *Sweating*, *Hemorrhages*, *Looſeneſs*, &c.

Or the ſickneſs cur'd by Sweating, Hemor. Looſeneſs.

Thus having demonſtrated the neceſſity of theſe Symptoms, from the ſuppoſition of an Interruption of Perſpiration, I would proceed to conſiderations of the like nature, if I were not firſt oblig'd to vindicate this *Hypotheſis* from one that is *merely* ſuch, as I but lately promiſed: If therefore any one will take one, more, or all of theſe Symptoms, and let him have

The Vindication of the Hypotheſis.

no reſpect to any hypotheſis, but read them backward, according to the known and familiar rules of Nature, he ſhall find them neceſſarily proceeding from a real or factitious *Fulneſs*, which are the ſame as to their effects; and ſince we come by this fulneſs in our ordinary way of living, 'tis plain, that 'tis not that that is its cauſe: but there's no way elſe we can acquire it, except by retaining ſomewhat for ſome time we uſually loſe; and ſince 'tis not the firſt, the laſt is either by the ſuppreſſion of the ſecretions made by Stool, by Urine, in the Reſpiration, or by the Skin, or Perſpiration; now, we ſee the foregoing ſymptoms rendezvous'd into a great number, while neither the Evacuations by Stool, Urine, or Reſpiration (the others I name not, they being very inconſiderable) ſeem to be much altered from what we ſee them in a natural ſtate; and therefore 'tis *Perſpiration* only, that is able to produce theſe effects and this *Fulneſs*, as I juſtly ſuppoſed. Moreover, *Sanctorius* has taught us, by making out the proportions of ſecretions in the 5, 6,

21,

21, 59, 60th Aphoriſms of the firſt ſect of his Statical Medicin, that ſecretion by Perſpiration, is at leaſt double of all the other ſecretions; and therefore, when that is interrupted, it can produce that fulneſs in as ſhort a time as all the ſecretions together could, and ſince they, or the moſt of them are good, while the named ſymptoms have grown into a great number; therefore this *fulneſs* has its *riſe* from an *Interrupted Perſpiration*, and ſo the ſuppoſition was juſt, and a great deal more than a mere *Hypotheſis*, as I was oblig'd to prove.

The Perſpiration thus interrupted in hotter conſtitutious, hot Countries, or a warmer ſeaſon, theſe Fevers do not begin with ſo long a continued *coldneſs*, but the *heat* ſucceeds a great deal ſooner, as may be collected from what I'm to ſay hereafter, when I give ſome intimations of the ſickneſs of hotter Countries. Yet, the blood having ſometimes that velocity, we aſſign'd it to have, in another place, when it is moſt apt to make ſecretions by the Stomach, Inteſtines and Pancrea's; which ſecretions being ſent

into the guts, in a greater or leſs quantity, and finding them leſs conſtricted, and the humour thus ſeparated not ſo viſcid as to ſubſiſt, it muſt needs get out the natural way and produce a Looſeneſs: and tho the guts were very firmly ſhut, yet if there be ſuch a quantity, that the power of its *Moles* is greater, than the force whereby they are conſtracted, it will make way to it ſelf by the inteſtines, as before. But ſuppoſing the guts thus ſhut up, and the quantity ſo ſmall, that it cannot make its way by the inteſtines, becauſe of its moles, yet if it's very thin, ſharp, and forced forward, either by its own motion, or the compreſſion of the neighbouring parts, or both; ſo that it can dilate the guts, there will be a *Looſeneſs*, as is evident. But ſince in our way of living, and in the Channel, where the Air is ſeldom very ſultrie, 'tis but rare for our blood to be in theſe circumſtances here required; and almoſt never but in ſcorbutical caſes; therefore we ſhall trouble you no further about this affair, but mind you, we are to account our Diarrhea's amongſt our

Diarrhea's may be.

our accidental ſickneſſes, and to be treated as ſuch in theſe obſervations that make the ſecond part of this.

Since we have ſeen, very plainly, theſe two different ways of the bloods being affected in an *interrupted Perſpiration*, or a *catcht Cold*; there's a third, that in a colder ſeaſon, with the blood a little weakned; wherein not only the blood, but the reſt of the humours, contract ſuch a lentor and viſcidity, as we ſpoke of juſt now; yet, when 'tis comminuted, and has paſt the ſeveral ſtages, as before, returns again by a freſh ſupply of ſuch matter, that is able to produce the ſame, or like effects; and in the diſcovering of *this*, I ſhall uſe the ſame method, I did in the former, *i. e.* I ſhall endeavour to give a plain and genuine Hiſtory of the ſymptoms or appearances in that order they affect; and I ſhall unfold them, in a natural, familiar, and conceivable way; that we may be the better able to make ſuch inferences, that may be uſeful in our Practice. Firſt then, *they feel a coldneſs after Dinner, their lips are pale, they tremble, their Pulſe is weak*; while they are thus affected they have an

inſenſibleneſs, and *trouble* of *mind*, while all the *external ſenſes are right*, and ſometimes the *external ſenſes* are *faulty*, when the *mind* is *ſerene* and thinks very clearly, their whole *body* like a dead *Corpſe*, and have a great *drought*; yet inſtead of *death* comes *warmth* and *heat*, which laſts for ſome time and *ends* in *ſweating*; at this time the *Pulſe* is *ſtrong*, and more *frequent* than is uſual, they have a *beating* in their *head*, a great *drought*, and after the *ſweating* the *Pulſe* becomes ſometimes *natural*; It *recurrs every day*, every *third* or *fourth day* incluſive, and acts over the ſame *Tragedy*, it *ends* ſometimes in *death*, and that in the *return*.

We have ſeen very clearly in the foregoing part of this diſcourſe, that this viſcidity of the blood, that confines the hot and ſmall parts, and makes it ſo apt to ſtagnate in the extremities, and afterwards in the other parts, is the true and genuine cauſe of that coldneſs we obſerve; but the blood thus diſpos'd, and not actually ſtagnating, and producing this coldneſs, is reduc'd to act by any thing that has greater parts than the parts of

of the blood; ſo that they cannot be intimately mixed with the blood, and become one homogeneous body; and ſince the chyle is of ſuch a ſubſtance as is here requiſite, as I have plainly ſhown in another place; therefore this viſcidity will have its power to make the blood ſtagnate, after the chyle has entered the blood, and not throughly comminuted by the lungs, ſo that the parts of the chyle may glide along equally with the parts of the blood. And ſince the chyle is ſeparated from the other maſs into the lacteal veſſels in an hour and an half, or two hours after dinner; therefore in an hour and a half, or two hours after *dinner*, this *coldneſs* is *felt*. Now in this viſcid ſtate of the blood, it is more compact, and diſtends not its channels ſufficiently, and they, as 'twere, withdraw and diſappear; and becauſe the veſſels of the lips are more ſuperficial, and are only covered with a very thin skin, ſo that the blood in a natural ſtate, may almoſt, be ſeen running in theſe veſſels, and give that fine red we daily ſee; yet when the veſſels thus ſubſide, and withdraw, the blood is thicker and more compact,

They feel a Coldneſs after Dinner.

pact, and nothing remains to be ſeen but the genuine colour of the membranes and fibres, that compoſe theſe muſcles, and they being of a pale and Clay-like colour, the *Lips* will be *pale*, as was ſaid. The blood then being ſo viſcid, weak, and having the ſpirits ſo confin'd, muſt needs ſeparate very few animal ſpirits for the reaſons often aſſign'd; and ſo the Nerves will be but not perfectly empty; now the motion of the ſpirits I have already prov'd to be alternate, and the continual efflux to proceed only from the abundance of theſe ſpirits in the Nerves; and therefore, when at this time there are ſo few ſpirits ſeparated, this fulneſs of the Nerves ceaſes, and ſo muſt the continual efflux too; and their alternate influx muſt be more ſenſible, *i. e.* becauſe their motion is alternate, the motion of their propelling power being alternate, they flow alternately into the muſcles, theſe weights which they are to ſuſtain; and becauſe of that alternate influx, they are contracted alternately, and this alternate contraction of the Antagoniſtial Muſcles being that which Phyſicians call *trembling*; 'tis plain that

Their Lips are pale.

They tremble.

that there must be a trembling in this want of animal spirits; tho Physicians have thought fit to express it quite another way. Now, supposing that this viscidity was so great, that it could even fill up the vessels in the brain, and therefore the viscid blood thus filling those vessels, being not so fit to separate animal spirits, and in this distention of the full vessels they do so compress the origin of the Nerves, that those spirits are not derived into the Nerves, and propell'd in that quantity into the heart, that's fit to make its contraction able to force out the blood into the Arteries, that they may affect our touch as usually; and their sides neither being distended so much, as in a natural state, nor with so great a force, make that sort of *Pulse* which is called a *weak Pulse*. In the midst of all this viscidity, the spirits are both in a lesser quantity and more confin'd; therefore in this real want of spirits, the mind cannot execute its office, they being necessary for the functions of the soul. Thus the Patient is *insensible, while all the external senses may be in a good state*; tho the converse of this may be true, that,

Their Pulse is weak.

They may be insensible, the external senses being right.

that, *viz. any one, or all the external ſenſes may be faulty, when the mind is in a thinking condition*; ſuppoſing that this viſcid ſtuff is huddled up by chance in a greater quantity about any Artery or plexus of Arteries, and if theſe Arteries involve or go round the Nerve, that ſerves for *Hearing*, *Seeing*, *Taſting*, &c. Theſe Arteries then being ſtuff'd up, and fill'd by the continual afflux of new blood, their ſides will be more diſtended and bent outwards; ſo that the Nerve that touches with them ſhall be compreſt; till at length by this continual ſtuffing, the Nerve is ſo totally compreſt, that it hinders the motion of the animal ſpirits, or at leaſt interrupts their motion, tho the ſides of the Nerve are not quite ſqueez'd together; and therefore it may very well happen, that one may be *thick* of *hearing*, or perfectly *deaf*, may not *ſee*, *taſte*, &c. and yet recover of a ſudden, the coldneſs being over, and this lentor protruded into the veins. And if this ſtoppage of the blood in the brain be ſo great, and its coheſion ſo firm, that it cannot be diſſolv'd by a thouſand juſtlings in the plexus of the *Pia Mater*;

Mater; ſo that almoſt no animal ſpirits flow thro the Nerves, either becauſe there can be no ſpirits made out of this viſcid blood, or that thoſe few that are made, cannot be deriv'd in the Nerves, that are ſhut up by the force of this ſtagnating blood; then thoſe ſpirits equally diſtributed into the muſcles, keep *them* equally pois'd, and in this equilibration and viſcidity there will be a want of motion and ſenſe with an intenſe coldneſs, and theſe being the conditions of a dead body or Corpſe, 'tis evident at this time our bodies will be like a Corpſe. This lentor being ſo great over all the body, 'tis ſo too in the Arteries that furniſh matter, for the Spittle that is ſeparated in the Glands about the mouth and throat, and no Spittle can be ſeparated from the Arteries in theſe Glands; ſo that in this leſſer ſecretion there can be no afflux of that moiſture to theſe parts, and the want of that occaſioning a drineſs and drought, therefore this ſtoppage is attended with a *drought*. Yet tho there is but a ſmall quantity of animal ſpirits ſeparated in the brain, and they deriv'd into the

Their Body like a Corpſe.

A great Drought.

compreſſ

compreſt nerves and muſcles very ſparingly and diſorderly; ſo that the actions of the body ſeem at an end, and the muſcles in equilibrio, the heart which has no antagoniſtical muſcle ſhall have its contraction continued; and if that motion thus continued can diſſolve and attrite this blood not quite ſtagnating, the body that ſeem'd *dead* and a *Corpſe* ſhall become warm as before, and have its life prolong'd. So the blood being once more free and fluxil, and the body hot, in the way we demonſtrated before; the attrition and comminution, that produce this heat, depending very much upon the velocity of the blood, ſo that the greater it is, the greater is the ſolution of heat, and the greater the ſolution of heat is, the velocity is the greater too; becauſe there's a greater quantity of animal ſpirits ſeparated by this ſolution of heat; and ſo ſucceſſively, till the viſcid blood thus ſubſiſting is ſo comminuted and attrited, and acquires that degree of velocity, we determined it to have when fit for perſpiring; and in that the ſmall parts of the blood will be propell'd thro

In place of Death comes warmth and heat,

thro the neighbouring pores in a great quantity, and produce that appearance we call *Sweat*, ſo that this warmth is continu'd and *ends* in *Sweat*, as we ſhall ſee more clearly in the ſequel. Yet before this ſweating, while the blood is thus comminuted, there's both a greater quantity of animal ſpirits, and this quantity is faſter convey'd to the heart, and the heart is often contracted, and that with greater force, and therefore the Pulſe will be *ſtronger* and more *frequent*, than in a *natural* ſtate. And becauſe of the great rarifaction and comminution of the blood, and its rapid motion, the ſides of the Arteries are diſtended to a greater pitch and very ſtrongly; therefore the more ſuperficial Arteries going outward with a great deal of force, affect the parts that are touch'd by them, and produce that feeling and noiſe, that's convey'd to us, upon the *beating* of one *body* upon another. While the blood is thus hurry'd about in this rapid and impetuous motion, and no great ſecretions of any ſort; there is a great drineſs in our mouth, becauſe of the ſmall quantity of Spittle that is ſeparated, and

And ends in ſweating.

The Pulſe ſtronger and more frequent.

They have beating in their head.

and that little is ſo divided into infinite parts by the force and warmth of the circulating blood, that theſe parts are left perfectly dry, and they diſpoil'd of their moiſture, produce that inſatiable *drought*. And ſince this lentor is at length entirely carried out of the Arteries, they will be of their natural wideneſs, after it is carried out, and ſo the blood may be propell'd thro them, without its being more attrited, comminuted or diſſolved, or the heat of the blood will not encreaſe in its progreſs thro the veſſels: and ſince the blood thus diſſolv'd, perſpires very eaſily; this heat ſhall not only not encreaſe, but be diminiſht, the Perſpiration leſſening its quantity. Moreover, the heat thus diſſolv'd partly perſpires, as was ſaid; and is partly mixt with the reſt of the blood, and is not comminuted, the ſlowneſs in which the blood moves thro the veins giving ſufficient time for this mixture; and the heat may eaſily inſinuate it ſelf into the groſſer parts, and they may ſomewhat confine this heat, and reſtrain its force by oppoſing this Penetration. Beſides, ſince there's an abundance of time betwixt

A great Drought.

betwixt both *Excurſus*, the blood muſt frequently flow thro the Lungs; and ſo be frequently diſſolv'd, and have its hot parts conveniently mixt with the other parts, and for this reaſon will be more natural; from which very thing that's natural will come; and therefore the body will be in perfect health, at leaſt for ſome time. Tho then the paroxiſm is thus judg'd by the aſſigned perſpiration; yet if that viſcidity that produc'd the firſt, is not conſum'd, but returns in a certain time: or if that is conſum'd and purg'd off by ſome of the known ways of Excretion, or ſo comminuted, that it is chang'd into the nature of ſincere blood; yet the cauſe that produc'd the firſt viſcidity, produces its like that can laſt out the ſame time, affect with the like ſymptoms, and be reduc'd to ſincere blood like it; and ſo there are two ways of making theſe *returns*, as we ſee. Let us ſuppoſe then, that there are two returns every day, and at the ſame hour (there may be aſſigned the ſame reaſon for the reſt, that recurr in the ſame difference of time) and the firſt is produced by a tentor that laſts for one day, and thereafter

The Pulſe natural for ſome time.

threafter is either purg'd out of the body, or chang'd into ſincere blood and the ſecond, by a piece of viſcidity of the ſame quantity and quality with that which occaſioned the firſt then, I ſay, that either of theſe lentors, or any other that can invade at the ſame hour, and takes up a whole day before it is conſumed, may ſucceſſively and by degrees be ſtored up in the blood veſſels, ſo that it either flows thither inſenſibly, or conſtantly in the ſmalleſt particles, or be bred within the ſame; till it can produce a ſenſe of cold, and the other ſymptoms that attend that. And becauſe, before that this cold and its attendants can ſeize us, 'tis neceſſary that this lentor ſubſiſt in the capillary Arteries which cannot be, unleſs its quantity is ſo great, that it cannot be mixed with the blood, ſo that it may flow freely thro the Arteries. Therefore, either this great quantity of lentor is bred at once in the blood veſſels, which is poſſible; or is at once derived into them from ſomewhere elſe, which is not unconceiveable: but even this is evident, that this very quantity may flow into the veſſels by degrees, or be bred

bred by degrees in the ſame; and therefore 'tis poſſible, that in the ſpace of one day, either ſome lentor, or ſomething that may breed this lentor may get into the veſſels; yet in ſo ſmall a quantity, that only after one day there be ſuch a quantity collected, that is able to produce that coldneſs with its attendants. And therefore, in the *end* of the *day* this *coldneſs* will *begin* again, and will make a *new return* by this lentor, that was ſtored up in the ſpace of a whole day; which lentor if conſumed in the ſpace of the next day; and, in the mean while, an equal quantity of another lentor be ſtored up in the blood, 'twill make a *third return*, and *ſo* it may be ſaid of *the reſt*, not made by the ſame lentor returning oftner, tho ſlowly, but made by a new one, the former being quite conſumed: but this conſumption may be ſooner or later, in the ſame day, according to the different nature of that lentor, the bodies that are mixt with it, and their diſſolution in the encreaſe and height of the diſeaſe. It can be no objection that this lentor or viſcidity of the blood is collected gradually, and therefore may be exterminated

It recurrs every day, every third, or fourth, &c.

terminated or comminuted, as soon as it can be collected, since it circulates thro the lungs and other parts some thousands of times in one day but this will seem not so difficult or hard to be granted, if we consider some examples of as great difficulty and yet most certain: for there's none that can be ignorant, how Nurses Milk and our Urine retain, more than one day, the colour and smell of Asparagus, Onions, Cassia, Rhubarb, Turpentine, &c. a certain argument that there are some what of these bodies carried into the breasts and kidneys, without ever losing of its nature; tho it has been carried often, and even some thousands of times thro the lungs; so that it may be highly probable, that this viscid stuff may be very often carry'd round the body, without any considerable alteration. What is better known than that the poyson of a mad dog shews not itself before the thirtieth or fortieth day, and sometimes longer so that before its appearing in these forty days, it has circulated some thousands of times thro the lungs, without suffering any diminution of its

strength

ſtrength; and therefore if ſome ſuch thing be ſuppos'd of this viſcidity, that is mixt with the blood, there will be no place left for our further doubting. Now, this lentor may be ſupplied by every thing that gives us nouriſhment, paſſions, *&c.* which are too remote, to be of any great uſe to us in knowing them: and therefore I ſhall confine my ſelf to conſider this lentor, either coming from the *primæ viæ* in our Chyle or otherwiſe, or elſe being ſupplied by ſuch *viſcera* that are ſaid to contain liquors: and firſt, if the Chyle or any other humor to be mixed with the blood, ſhould be generated according to nature in the unnatural ſtate of the blood (which is hard to be ſuppos'd) yet this natural humour mixing with the blood would be chang'd into its nature; and conſequently become viſcid, that is, a liquor fit to produce that lentor, which if mixt with the blood confuſedly and without order, the returns too can have no order; but if it be carried into the blood in an exact order, the returns will be very exact and orderly: for if the blood have ſtill that unnatural power, and the humour

brought

brought into it ſtill retain its natur
power, there will be always the ſam
time required, to change that natur
humour into that which is not natu
ral; and this time may be one, tw
or three days; but if any one or all
them are of a different nature, th
proportion of time will be chang'
and the Returns diſorderly; but
this natural humor is deriv'd at diffe
rent times, from the ſame or differen
parts, and immediately, or in th
ſame diſtance and interval of time,
acquires an unnatural power from th
unnatural blood; there may be abun
dance of Returns orderly and diſor
ly, as the Derivations are orderly o
confus'd: and if thoſe humors are
different natures, conſiſting of par
of different ſorts, every one of the
requiring a different interval of time
before they can degenerate into th
kind of lentor; the variety of Return
will be altogether uncertain, and kee
no order. Next, let us ſuppoſe that i
the Viſcera, that are ſaid to have con
ſiderable ſecretions made in them, th
liquors being viſcid are return'd b
their veins into the *Cava*, and in th
order of the former viſcid parts ci
culat

culate with the blood thro the whole body, till they acquire ſuch a thickneſs or quantity of viſcidity, that may make them fit to ſtagnate in the ſmall capillary Arteries, and to produce that Coldneſs and other Symptoms, as before: 'tis evident, not to reſume our former reaſoning, that their Returns will happen in certain *intervals* of *time*, *orderly* and *diſorderly*, according as the ſupply is made from all thoſe Viſcera, or from any one of them, and as *that* is mixt in a greater or leſs quantity, orderly or confus'dly. But if there is ſo great a quantity of this lentor mix'd with the blood, that it cannot be propell'd from the ſmall Arteries into the Veins; or tho the quantity be leſs, yet if its adheſion to the veſſels be ſtronger than can be broken off, ſo that it cannot be carried thro them: then the blood cannot be propell'd, and in a ſhort time the body will be cold, there will be no blood deriv'd into the Muſcles, it either comes not to, or totally ſtagnates in the Brain, ſo that there can be no animal ſpirits ſeparated in the nerves, and conſequently there will be an irrecoverable deprivation of ſenſe and mo-

motion, or (which is the ſame thing) there can nothing happen but *Death*: ſince that lentor is ſuppos'd to be ſo great, that it cannot be protruded and carried thro the Arteries: and all this happens while this lentor ſtops in the Arteries, and this ſtoppage being in the *Return*, 'tis evident, that *Death* will alſo *happen in the Return*.

It ends ſometimes in death and that in the Return.

I have been longer upon this conſideration than any of the reſt, becauſe the difficulties of Fevers and Agues are the greateſt; tho now, I preſume, they are clearly demonſtrated from the *interruption* of *perſpiration*, that great and moſt conſiderable inconvenience of their *Lodging*: and now I ſhall proceed, and reflect upon the other propoſitions, in that order they come to hand; and therefore the next thing comes to be conſidered, is their *life*, in reſpect of their *temperance* and *debauches*. As to the firſt of theſe, 'tis certain, as there is nothing more valuable than a temperate life, ſo that is never more valuable than at Sea; and if we look a little back, and remember their ſalt Victuals, Cheeſe and Bisket, there will be no great Rhetoric requir'd to defend their inno-

Their Life, as to what concerns their temper. *&c.*

innocent *Saturday* night's Cabals, in drinking the Wives; for without the temperate uſe of ſpiritous liquors, their victualling, with all their fatigue, will be little enough to afford neceſſary Chyle, groſs enough to make their thick blood, that cannot be ſo eaſily ſent round their bodies, without the help of a Bowl of Punch or a Can of Flip: So that, in ſhort, they are ſo far from being diſſwaded from ſuch moderate drinking, that 'tis to be enjoyn'd for health's ſake; and I doubt not but this way of drinking will not only prevent, in a great meaſure, the ſickneſſes we have named, but even keep them from falling into the Dropſie, Jaundice, and *Melancholia Hypochondriaca.* Yet to ſpeak truth for the honeſt Sailors, they ſeldom fail in this point, ſo long as they can have an occaſion to exchange the baſe Metal for the noble Spirit of Wine: but are oftner very ill husbands, exchanging all at once, and deſtroying the whole purchaſe at a down-ſitting; ſo that being got drunk, and not being able to crawl into their Hammocks, they ſpend the night faſt aſleep upon the cold Deck, and contract

tract those sickneſſes, that attend an interruption of Perſpiration: Only their blood being full of the Spirits of this liquor, they do not lye ſo long under the Coldneſs that begins all Fevers, as in Fevers otherwiſe gotten; for the ſmall parts of the liquor ſooner break and divide the viſcid parts of blood, than when it is without them; and becauſe of the comminution of this lentor, the ſmall parts of the blood are ſet at liberty, and the heat felt over all the body: therefore when the perſpiration is interrupted, and the blood full of theſe Spirits, the attrition and comminution will be ſooner perform'd, *i. e.* the Coldneſs will be ſooner at an end, and ſo the Feverish heat begin a great deal the ſooner, which, according to the conſtitution and age of the patient, the time of the year, and way of Cure will make the diſeaſe of greater difficulty.

Thus having ended the diſcovery of theſe Diſeaſes, that are peculiar to people, that uſe our narrow Seas which is the firſt part of my promiſe I proceed to give an account of thoſe that may be got nearer or under the

Line

line; which it will be ſufficient to hint at in ſhort, and leave that to be finiſhed by others, whoſe peculiar province it may be; and 'tis enough at this time, to have given ſuch neceſſary views, that may help our curing in the Channel; tho, in my opinion, the reaſoning will hold ſomewhere elſe; but to ſpeak no more of this, I ſay, that ſince the Diet and Victualling here and in other places is much after the ſame way, whatever proceeds from *that* may reaſonably be ſuppos'd to hold, ſince that is only to be thought a *cauſe*, which, when it is ſuppos'd, the effect neceſſarily follows: ſo that the only difference will be in the Air; which we know is more ſerene and warm in thoſe places: and therefore, becauſe of its *gravity*, (which is always greateſt in a ſerene Air) the blood and all that's carried along in it, are more minutely broken and divided in the lungs, as I have demonſtrated in another place at great length; and therefore is more apt to ſeparate its ſmall and fine parts, and ſo to have a greater motion and all the conſequences that follow upon that: beſides, the Air too being very warm,

The diſeaſes got nearer, or, *&c.*

warm, the parts of the blood are extreamly rarify'd, take up an infinite ſpace, and diſtend the ſides of their channels to a great wideneſs, compreſs the neighbouring parts, induce weakneſs, and ev'n break thro the ſmalleſt and thinneſt of their channels, overflow their banks, and produce all the inconveniencies, that might be made out according to the abovemention'd principles, if it was proper in this place.

But as for thoſe ſickneſſes that are not peculiar to the Sea, but are alſo common to the Land, I ſhall conſider them as interloping diſeaſes in the ſecond part of this Treatiſe; where I am to lay down the Indications for, and Method of Cure: but before I leave this part, I ſhall give a ſhort account why, in this explication, I have not us'd the accuſtomed ſtory of *Poyſon*, the *Chymical Principles*, and of *Acid* and *Alkali*; and then proceed to the obſervations themſelves, which make up the *ſecond* Part.

Why I have neglected the common ſtories of Poyſon, *&c.*

And firſt, as to that poyſon, which ſome aſſert to be in the ſpirits, fit to produce theſe Fevers, 'tis altogether unexplain'd by its Patrons, and is very unintelligible

Why Poyſon.

intelligible as yet; neither is it allowable for us to run ſtraight to the animal ſpirits for the ſolution of every Phenomenon, and to neglect the blood it ſelf, of which they are made, and which muſt be always ſuppoſed in demonſtrating their nature; and truly there can be nothing found in the moſt malignant Fevers, that does *really* diſtinguiſh them from any other continued Fever, for the whole difference that can be alledged, is *ad majus & minus*, and I doubt not but that they may be naturally accounted for, by a greater or leſſer quantity of this lentor, its greater or leſſer coheſion, and its different ſolution. 'Tis better then to give laws to that boundleſs and unaccountable poyſon, ſo much ſpoken of by ſome Authors, tho ſeldom more than by the name, without ſo much as its counterpoyſon for a Cure, which would been very neceſſary, conſidering how great differences there are betwixt poyſons themſelves. But what ſeems the ſtrangeſt and moſt ſurprizing to me is, that if in a Family of ten or a dozen people, there is one whom we ſhould determine to have the beſt blood, to

be of the moſt athletick and robuſt habit of body, before the invaſion of this Malignant Fever; yet this one ſhall catch it the ſooneſt, and run the greateſt Riſque in his Life; while the more ſickly, aged, *&c.* ſhall never feel it, or if he does, recover without any great care or pains. But, in ſhort, thoſe Fevers that are commonly reckon'd *malignant*, are not really different from the *containing* Fevers; and that they have their beginning from the ſame lentor that cauſes other Fevers, may be evident from this; that the moſt of thoſe malignant Fevers ſucceed theſe very Fevers, both quotidian and tertian, in which there are greater quantities of heat and humidity, that diſſolve this lentor; tho they come not ſo frequently after quartans, in which the viſcidity is greater, and the warm parts more confin'd: ſo a ſingle intermitting Fever eaſily degenerates into two intermitting Fevers, coming in the ſame time that the former did; they into two containing Fevers *per ſubintrantiam*, and they into one, which is quickly call'd malignant. And ſince all theſe changes are only certain degrees of this lentor,

as

as 'tis more or leſs tenacious, and ſticking to the veſſels; 'tis evident, that no more can be ſaid, but that the laſt of all theſe Fevers ſuceeeding in that order, or the *formidable* malignant Fever, is of the very ſame ſtock with the reſt: and ſince they proceed gradually, from the ſmaller to the greater degrees of this lentor, this can only be ſaid to have its time in a greater degree of the lentor, as I intimated before.

As for the Chymical principles, they are ſo far from being ſimple, and having the requiſite properties of principles, as one of the learnedſt Chymiſts has demonſtrated, that 'tis ſtrange any man ſhould adviſe us to aſſume propoſitions ſo unknown, in order to the explaining of Sciences, that have ſo uſeful and neceſſary a practice; they think indeed, if they can tell us a ſtory of the diſſolution of ſome bodies, and give but a groſs gueſs at the ſtrength of their different *menſtrua*, they may very well undertake the explication of all the phenomena in nature, by their different ſolutions and coagulations, before they have found out their univerſal diſſolvent, which might prove

Why the Chymical Principles.

of very great uſe: but they muſt commit infinit miſtakes even in this, ſince they are intirely ignorant of thoſe powers, that give *fluxility*, *ſolidity*, *motion* and *reſt* to any Body, tho their *fermentations*, *ſolutions* and *coagulations* depend upon them, as their frequent diſappointments in their repeated practices muſt convince them, if the impudence, as well as ignorance, of the common Chymiſts were not incorrigible: and we ſhall find as little truth or ſolidity in their way of arguing concerning the ſtrength of their *Menſtrua*, if we purſue their ordinary way of reaſoning; ſo little do they know of their own fam'd and belov'd *Menſtrua*. For when they aſſert that ſuch a *Menſtruum* is corroſive, and produces ſuch effects by this power, 'tis evident, that *corroſiveneſs* being the productive cauſe of thoſe effects, then by adding ſomewhat elſe that is corroſive, it ſhould produce them better; whereas the contrary is ſo well known, that I ſhou'd not alledge any proof or inſtance, if I were not convinc'd they will deny what they daily ſee. Let us then take *Aqua fortis*, which, they ſay, is able to corrode

rode Silver, and diſſolve it into the moſt minute atoms, by its corroding power it has from the Vitriol and Allom, of which it is made; then, by adding another thing to the compoſition, that is equally ſharp and corroſive, if not more, the *Menſtruum* ſhould in all reaſon act the more powerfully; and therefore by adding *Sal Armoniac*, which is a great deal more corroſive than Allom or Vitriol, it ſhould ſtill corrode the Silver more, which is ſo far from being true, that it is not able to make the leaſt impreſſion upon it, unleſs the plate be extremely thin, and red hot, and not much then. And, that Nitre and Sulphur, which is ſo much inflam'd in the blood, when we have a Fever; mixt together and burnt, make up the *Sal prunellæ*, ſo much us'd in curing Inflamations and Fevers; but of this more hereafter: and I ſhall only add, that if the Chymical principles were allowed to have half the certainty their Authors pretend to, yet they never made them of uſe enough to us, ſince they were never able to give ſuch laws, by which we may have

any certainty of the degrees and application of Motion in their fermentation and *Menſtrua*: and ſince it is motion in its different velocities, contacts and occurrencies, with other bodies in a different ſtate, and in their ſeveral parts, that conſtitutes all the variety in the known world; our work ſhould be to enquire into that, and ſo we ſhould be better able to judge firmly of things, tho we muſt not debar our ſelves of any help, that may aſſiſt us in this diſquiſition. And truly, when a Chymiſt ſtumbles upon two or more liquors, that make a curious colour when mixt, he can ſay juſt as much of it, as of a white, red, or yellow Ribband and no more; he can, perhaps, tell you how he made his Liquors, but how by their combination they came to give this colour, he can give no better account than the Dyer of his Ribbands; ſo that while we advance no further, we are like to make a wonderful progreſs in the knowledge of things. Now becauſe the Chymiſts tell us, that a Fever is nothing but too great a quantity of ſulphur in the blood, or that too much exalted; let's enquire into its

power

power of doing this and producing that effect. And that we may proceed with more order and exactneſs, let us ſuppoſe this Rule, which is admitted by all the Philoſophers, as moſt agreeable to the dictates of nature; namely, If any thing be ſuppos'd as a cauſe, and the effect always follows without the help of any thing elſe; we may, without doubting, aſſert and believe, that to be the productive cauſe of this effect: and on the contrary, if the pretended cauſe be there, and the effect follows not upon it; or if that which is ſaid to be the effect, be preſent without the cauſe, then that cauſe never produces that effect. And therefore ſince adding of ſulphureous Medicins to the blood, will not only heighten the power of the ſulphur in the blood, but produce more; 'tis plain that upon that addition we muſt always have a Fever; yet after the drinking ſalt and ſulphureous Bath-waters, which are intimately mixt with the blood, and diſpos'd over all the body, we ſee no ſuch feveriſh fits produc'd. Yea in a Suppreſſion of Urine in the Stone, the ſharp and pungent ammo-

niacal ſalts of the Urine, ſhould infect the maſs of the blood, and produce thoſe feveriſh effects, which nevertheleſs are never obſerv'd to happen. Beſides, we know that we can pour a drachm or two of Oyl of Sulphur immediately into the blood of a live Dog by his blood veſſels; and after the veſſel, into which it is injected, is bound up with a moan or two, and the Dog ſet at liberty; he is ſo free and ſafe from any Fever, that he skips about full of health, and eats up whatever comes in his way for his purpoſe: and therefore if the blood, when altered with ſo great a quantity of Salt and Oyl of Sulphur, is not in the leaſt feveriſh; we muſt acknowledge that an alteration made in the blood by ſaline and ſulphureous juices and ſpirits, is not the productive cauſe of a Fever.

Why Acid and Alkali. And laſtly, to diſcredit the principle of Acid and Alkali, it would be ſufficient to obſerve, that they who ſet up for it have not let us know what it is, when they tell us, that an Acid is that which can ferment with an Alkali; and we know, that ſome Medicins both ſimple and compound-

ed,

ed, ferment with ſuch as are declar'd Acids, and then with others that are determined to be Alkalies; and it might ſeem very needleſs to alledge their ridiculous evaſion, but that they'll mumble it over at the reading of the objection; and 'tis this, that that Medicin contains ſome Acid and ſome Alkali in its parts, by which, in theſe two reſpects, it may ferment with both; and ſo by this ſettlement they make neither Acid nor Alkali, becauſe the bodies are mixt, and all mixt bodies partake and ſhare of all the principles, whatever they be, according to the Philoſophers, and are ſaid to be of this or that nature, Acid or Alkali, which ever predominates, and bears the greateſt ſhare in the compoſition; and if they be ſuppos'd equal, our noble principles muſt ſcuffle for the Maſtery. And even tho this were partly allow'd, we might ſufficiently diſprove this Hypotheſis, by conſidering any one diſeaſe, where we may find a vaſt number of not only antecedent cauſes, but other ſymptoms enumerated by Medicinal Writers, that can never be accounted for, either by an Acid or Alkali.

Yea

Yea ſo much are its Patrons in the dark about their principle, that we find them daily betray'd into the greateſt abſurdities. For inſtance, its great ſtickler Dr. *Blankard*, who is follow'd by all the reſt, has expreſly declar'd, in a whole ſyſtem of practice he compos'd according to thoſe principles, that all Diſeaſes proceed from the faultineſs of the Acid only, which is the moſt ridiculous thing can be ſaid in a few words: for ſuppoſing, that Acids and Alkalies are the true Ingredients or Components of bodies, and that they concurr as principles in their action, and bear contre-parts in this action; then, becauſe the influence of either upon the other, may be augmented, diminiſhed or loſt, and this is to be faulty or vitious; therefore 'tis evident, that either of 'em may have its defects, and conſequently that the blame ſhould not be entirely laid upon one.

I hope, by this time, no reaſonable perſon will cenſure me, for not ſpeaking a language, which neither I nor its Admirers can underſtand, when I declare my thoughts

thoughts about our Sea-ſickneſſes; which I have endeavour'd to diſpatch with all the ſhortneſs, plainneſs, and accuracy, I am capable of.

The End of the Firſt Part.

The Second Part.

CONTAINING

Some Hiſtorical Obſervations

OF THE

Diſeaſes in the FLEET

During the laſt Summer.

With the Method that was obſerved in their Cure.

The Second Part

containing

Some Medical Observations

on

Diseases

Cured in their Cure

PART II.

Hiſtorical Obſervations of the Sickneſſes of the Fleet the Laſt Year,

IF, in relating our Obſervations, I ſhould oblige my ſelf to give but the names of thoſe I have viſited, ſince my concern in the Fleet, they would make up a Book as large as theſe obſervations ought to be: and truly, conſidering the uncertainty of the Event, either thro the negligence of ſome Surgeons in purſuing directions, or ſometimes the ſame Medicins not being given according to order; it would prove of no uſe to any body to be inform'd of ſuch a practice; and therefore I ſhall confine my ſelf to ſuch Obſervations, I made on board the ſame Ship, I was in my ſelf,

ſelf, or in the Hoſpital, by the help of Mr. *M'kie*, and Mr. *Connel*, two careful and ingenious Surgeons on board theſe Ships.

Obſervation I.

Obſerv. 1. *Iſaac Pett* was taken ill, on board his Majeſties Ship the *Elizabeth*, with a heavineſs in his head, pain in his bones and thorax, want of appetite, and a ſudden weakneſs; his Pulſe was depreſs'd, and ſlower by 8 or 10 ſtrokes in a minute; about 30 hours after, his Pulſe was more free and quick, he had a great drought, and his tongue was very rough.

Hints for Curing Fevers. In the Cure of Fevers, we ſee, that thoſe people, that are left to themſelves, and take no Medicins, ſhake off their Fever by *Sweating*, *Looſeneſs*, a *Hemorrhagy*, *Diabetes*, *&c.* which gave the firſt intimation to practitioners to provoke *Sweat* (ſome with internal Medicins, others in Baths, and the *Iriſh* of old by lapping themſelves up in Blankets, throughly wet in cold water) to give *Clyſters* (for farther their Hellebor, Aloes and Scammony would not allow them to go) to *open*

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a *Vein* or an *Artery* with Lancets, or by Cupping with Glaſſes or Horns (which ſome uſe to this day) to give Medicins that *provoke Urine, &c.* But even all theſe have been diſprov'd in part, in ſome one place of the world or another; by obſerving, *viz.* in *Bleeding*, that, becauſe it is more frequently us'd in *France* and *Spain* than in *Italy*, they conclude, that if Bleeding contributed notably to promote the Cure of Fevers; then, where that is practiſed, more would recover, than where it is neglected; and conſequently, that if they did recover their Patients in *Italy* with as great ſucceſs as in *France* or *Spain*, Bleeding may be reckon'd indifferent: And in *Turkey*, where they cure their violent containing Fevers (as Phyſicians call them) with *Abſtinence* and *Sherbett*, they condemn us for our frequent uſe of Diaphoreticks and Sudorificks; and we return the charge upon them, without any further conſideration. But, which is yet worſe, men are apt to give up their reaſon, to ſuch a degree, that they obſtinately retain that ſort of practice, in which they were bred, where-ever they come, and will ſtiffly and

The reaſon of unſucceſsful practice.

and positively maintain that to be the only safe method, and all others fatal and pernicious. But those Countries too, that are settled to one sort of practice, so soon as by some alteration in the Season, (perhaps to the better) and other circumstances of Curing, they find their way not to answer, and to be more uncertain (if any thing can be more so than a set practice); then the Disease is *malignant, quite new, mankind chang'd*, &c. which would make people believe, that, whatever certainty there may be in Medicin, yet there is little or none in the cure of Fevers. But besides all these mistakes, there is still another more considerable one, of which very many are guilty; and that is, because we see, that all these different ways of practice, are and have been successful in different Ages and Countries; therefore we may use them promiscuously, and all at once; whereas we should also consider the conveniencies for putting them in practice, and the way how we expect they are to produce their effects; and, because in the abovementiond methods, the way of performing the one

one is quite oppoſite to the other, we ſhall ſeldom, if ever, ſucceed by doing all at once; and we are to bear with, any method already begun, and endeavour to make the beſt of it, even tho it is not the moſt genuine, natural, and convenient; and muſt never venture upon any other in acute diſeaſes, of which we ſpeak, if it has been continued for ſome time.

What our thoughts are about the former intimations.

But to return to our ſubject; if we reflect upon the Theory demonſtrated in the firſt part of this, 'twill be evident, that becauſe this diſeaſe proceeds always, with us at leaſt, from an *interruption of perſpiration*, and becauſe the maſs of blood is corrupted and vitiated, by the quantity of the ſteams thus detain'd, that the genuin and natural way of curing this, is by evacuation, either according to the quantity of the detain'd moles; or at leaſt in ſuch a proportion, as may ſet the parts of the blood at greater liberty; and ſo, becauſe the different ſecretions depend upon the different degrees of the bloods velocity, when the blood acquires a velocity, like that which is natural, it will alſo have natural

tural ſecretions, and in this manner be reduc'd to its natural Contact and Coheſion, *i. e.* it will be propell'd in its ordinary and natural way, and the Patient will recover his health; ſince health is nothing elſe but the moſt natural circulation of the blood. Now ſince Evacuation thus perform'd anſwers our Deſigns in Curing Fevers, both by leſſening the quantity and altering the maſs, 'tis certain, that all the conſequences drawn from the former intimations are juſt, and may be put in practice upon *reaſonable* occaſions. The next queſtion may be, which of all the mentioned ways may be the moſt natural and convenient for a general Practice: and ſince *Blooding*, *Sweating*, and *Purging*, are moſt commonly received among us, I ſhall enquire which of theſe we may moſt generally depend upon.

What of Bleeding, Sweating and Purging.

And firſt, ſince both they that allow of Sweating, and they who recommend Purging for the moſt general Practice, affirm that Blooding is agreeable for both their deſigns, there is no occaſion left for diſputing about the Neceſſity or Uſefulneſs of that Operation, if the neceſſary cautions be

be obſerv'd with regard to the quantity of blood that ought to be taken away, ſo that the controverſy lies intirely betwixt Sweating and Purging, which I ſhall endeavour to determine with all the impartiality imaginable, and that by enumerating the advantages and inconveniencies of both. And firſt, becauſe the ſecretion by the pores, is double of all the other ſecretions in the reſt of the body; 'tis plain, where this ſecretion can be perform'd, that there may be a greater quantity ſeparated from the blood, in a certain time, than may be by all the other ways together in the ſame ſpace of time; ſo that for that reaſon it may ſeem the moſt convenient and agreeable; yet ſince it muſt be excited by Medicins, that ſupply the blood with ſpirits, and conſequently unlock the ſpirits of the blood, that are confin'd by its viſcidity; if thoſe Medicins be given to ſick people, that are young, have an abundance of blood, and that very rich, 'tis plain that they muſt ſo break and divide the parts of the blood, and excite ſuch a velocity, by which few or no ſecretions of any ſort are made,

as we ſee but too often in our daily practice; and therefore this practice can only agree with thoſe that are older, and have not ſo rich blood. I need not give my judgment about the other two ways of provoking Sweat, ſince they are not in uſe with us; yet I think it will not be far from the purpoſe, to remember you of a ſtory Dr. *Willis* tells us, in his Book of Fevers, of a young woman that lay ill, and was his Patient, and for whom he had preſcrib'd a great many Medicins, that might *judge* her Fever by Sweating, but all to no purpoſe; and at laſt, I think, he gave her two Drachms of the Spirit of Harts-horn, but nothing like Sweating appear'd: on the contrary, her *Pulſe* was *higher*, ſhe was very *hot* and *delirious*; and among the reſt of her idle talk, being doubtleſs incited by an extraordinary drought, ſhe deſir'd to go a ſwimming, and up ſhe got for her Journey; but was kept in, till her friends reſolving to humour her, concluded to carry her to the water; and accordingly, they not living far from the River, carry'd her down (whether with the Doctors conſent I remember not) and

and when they had ſecur'd her from ſinking, or going too far out of their reach, at length threw her into the water; and, after ſhe was brought out again, was put to bed, where ſhe ſweat off her Fever. Some ſuch like caſes happen very often to our Sailers, who, in the time they are delirious or have Calentures (this word our Surgeons uſe for violent Fevers, yet 'tis only a general word in *Spain* for a Fever) when lying in their Hammocks in a calm Summers day, they ſee the Sea thro the Gun-Ports very plain and ſmooth, and imagining it to be a green Meadow, get up a walking, and fall into the Sea, if they are not ſtopt in their way; but if they get at laſt into the Sea, and are taken up and laid into their Hammocks, they ſweat very plentifully, and ſhake off their Fever. I do not take notice of theſe inſtances, with a deſign to perſwade people to ſuch a practice, while we can perform the Cure a great deal better; but only to be an example in practice for the propoſition I have eſtabliſh'd in a Theory of the velocity of the blood ſomewhere elſe, and nam'd juſt now. And I think that

propoſition is very well confirm'd by theſe inſtances: ſince we ſee, that this rapid motion of the blood in this dilirious and mad ſtate is check'd by the coldneſs of the water; and being thus check'd ſends out abundance of its parts by ſweating, as I alledg'd.

Upon the other hand, if purging Medicins can evacuate as much out of the blood, as the moles that's detain'd amounts to, without heightening, or at leaſt not conſiderably, the motion of the blood; then that will be a more certain practice, and no leſs reaſonable than the other. Now, I could make it plain, by a great many experiments, that the detain'd ſteems, that produce theſe ſymptoms, we find in Fevers, do not exceed three or four *lib.* and ſince 'tis agreeable with our daily obſervation, that we can give Medicins that evacuate by Stool, a greater quantity without heating the body: Therefore 'tis very evident that the adminiſtring of Medicins that evacuate by Stool, will be a more certain and ſafe way of curing Fevers. But whatever may be ſaid on this ſubject, I admire how that practice can be thought agreeable at Sea, where

where there is ſo piercing and ſharp an Air for, at leaſt, eight months of the year, that none that's overheated by any violent exerciſe, would think it convenient to go into, and far leſs to take a ſweating Medicin in it. This matter then being clear, I proceed to the way of curing our Patient; and becauſe bleeding not only brings down the moles to a natural quantity, but ſets at liberty the ſpirits thus huddled up; and his Pulſe beating but about ten ſtrokes leſs than naturally, I order'd twelve ounces of blood to be taken away, and preſcrib'd him ſix grains of *Tartarum Emeticum* next morning; that there might be no conveyance of any thing from the ſtomach, that might confirm the coheſion of the ſtagnating parts, but might even break and divide thoſe that were already in a ſtagnating condition; for the reaſons to be mention'd hereafter. Having thus been let blood in one day about ten a clock in the morning, and next day his Vomit working very well; about four a clock in the afternoon of that next day, his Pulſe was at leaſt ten or twelve ſtrokes higher than naturally,

and therefore he took a doſe of the following Powder, to reſtrain that growing motion about the evening.

℞ *ocul. canc.* ppt ℥ij. *ſal. prunel.* ℥ß. *crem. Tart.* ℥j *M. ac Divid. in* IX *part. æq. Capiat unam ter in die.*

All the while he drunk as much Barley water, ſharpned with Vinegar, as he pleas'd; in purſuance of this deſign; and after three days when his Powders were done, I preſcrib'd him that which follows to be taken next morning.

℞ *Pulver. Cornach.* ℥ß *Tart. vitriolat. gr. v. M. ac Capiat cum debito regimine.*

It purg'd him ſome eight or ten times very gently; he ſlept very well that night, and got rid of his Fever: but that he might recover his ſtrength the better, he eat nothing for three days but Burgoo, Water-gruel, and the like, and drunk ſix ounces of the *Decoctum amarum alterans* every morning for that time; all which he did with the deſired ſucceſs.

Obſervation

Obſervation II.

Shelborow Roydon, in the ſame Ship, Obſerv. 2.
a Man of about thirty years of age, and of ſuch a conſtitution that has a Pulſe of ſixty ſtrokes, or thereabouts, in a minute, was taken ill with a pain in his head, a want of appetite, a ſudden weakneſs, a coſtiveneſs, a depreſs'd Pulſe, which grew more frequent the ſecond day, and then he was very hot, reſtleſs, and his tongue dry. I ordered him to be let blood, for the reaſons I intimated before; and becauſe he had not gone to Stool for two or three days, I deſir'd he might have a Clyſter in the evening, that might purge him once or twice, and next morning ſix grains of *Tartarum Emeticum*, with which he vomited five times, and purged twice; he was very eaſy after his vomiting, his pains began to go off, and his Pulſe to beat a great deal quicker; on the third morning he took the firſt doſe of the following Powder.

℞ *ocul. cancr. ppt. vel pulver. teſtar. ovor. non calcinat.* ℥ij *Sal prunell.* ℥jß. *Sal Tart.* ℥ß *aut* ℈ij. *M. ac divid. in* IX

part. æqual. ut capiat unam ter in die.

Next morning after the taking all the doſes of this Powder, he was purged with that which follows.

℞ *Pulver. radic. Jalapp.* ℥ß. *Reſin. Jalap. gr.* iij. *Crem. Tart.* ℈ß. *M. ac capiat hora ſeptima matutina.*

During the whole progreſs of his ſickneſs I allow'd him the Barley Decoction acidulated, as before: and while he took the Powders, he had one or two Stools a day; and after his Purging Powder the Fever was perfectly vanquiſhed: but, that he might recover his ſtrength the ſooner, I order'd him tweuty drops of *Elixir Proprietatis* in Barley-water for three or four days; and to begin to take them a day or two after his Fever was perfectly over.

Obſervation III.

Obſerv. 3. *Walter Griffin*, a man of five and twenty or ſix and twenty years, and of a bilious Conſtitution, was taken on the fifteenth of *June* laſt with a Shivering and Coldneſs, that laſted ten hours, his pulſe was depreſs'd, and he was troubl'd with pains over all

all his body: the ſame evening he began to be hot; his pulſe beat 90 times in a minute, and he had an inſatiable drought; about the time his Pulſe began to riſe, and his heat to encreaſe, he had a very large ſweating, but without any benefit.

He was let xii ounces of blood that morning; on the 16th he took iv grains of the vomiting Tartar, by which he vomited ſix or ſeven times, and went thrice to Stool; and was a great deal eaſier the greateſt part of that day; on the 17th he begun to take a doſe of the Teſtaceous Powders I preſcrib'd, and continued till he had taken nine doſes: but on the 18th his Pulſe was very high, and beat more than a hundred in one minute, and he inclined to be delirious. And therefore I order'd him to be let ſixteen ounces of blood more, and to continue the uſe of the Powders: only he took in the evening two grains of Camphire in that Doſe, and had a very good night; on the 19th he took his Powder without any addition, and the following Purgative on the 20th.

℞ *Decoct. Tamarind. amar. purgant. an* ℥iij. *Syr. de Rhamno* ℥i. *M.*

This purg'd him twelve times very eaſily, and ſo he got rid of his Fever: I order'd him all the time of his ſickneſs to drink as much of the following decoction as he pleas'd; and he drank at leaſt three quarts in ſome days.

℞ *radic. oxylappath. acetoſ. an* ℥ii *hord. mund. M. j. Coq. l. a. in S. q. aq. font. ad* lbj. *circa finem addendo paſſul. Maj. integr.* ℥iij. *Colatur. claræ affund. acet. acerrimi q. ſ. ad gratam aciditatem pro potu ordinario.*

Now, tho by this method our Patients are ſpeedily recovered, and are never, or very little delirious; yet all the Winter, and in the beginning of the Spring, (as I obſerv'd in viſiting the Fleet at *Black-ſtakes*) the coldneſs laſts four or five days, tho not ſuch a coldneſs as we feel in Agues; and therefore there muſt be a great deal more circumſpection us'd in Bleeding, ſometimes in a leſſer, and ſometimes, tho not ſo frequently, in a greater quantity; but this muſt be done with reſpect to the Patient's conſtitution and circumſtances, provided always, that the powers of the faculties

faculties be not leſſen'd; at this time too, 'tis ſometimes neceſſary to repeat the Powders and Purgatives a ſecond time, and ſometimes to take the following Powder, when the pains are more obſtinate and hard to be removed.

℞ *Ocul. cancr. pat* ℥ß. *Antimon. diaphoret. ſal. Abſynth. an.* ℈j. *M. ac Divid. in* 3 *part. æq. quas conſumat partitis vicibus eodem die.*

Obſervation IV.

William Richards, on board the *Elizabeth*, being about 30 years of age, whoſe natural Pulſe ſtrikes 60 in a minute, was taken on the fifth of *July* laſt with a ſhivering, ſudden weakneſs, a want of appetite, and pains in his bones; then he grew hot, reſtleſs, had a great drought, and could not ſleep. He was let 12 ounces of blood on the 6th, by which his Pulſe was ſenſibly rais'd while he was a bleeding. he took vii grains of Emetick Tartar, and being well ply'd with thin Water-gruel, after his Vomit began to work, he vomited five or ſix times, and went thrice to Obſerv. 4th.

ſtool, and was very quiet all that day: I gave him no Paregorick in the evening, as I do in ſome other caſes, becauſe I conſtantly obſerve, that all Opiat Medicins heighten the Fever extreamly, and make the Patient ſooner delirious; and therefore he took nothing elſe that day: but on the 8th in the morning he began the teſtaceous Powders, of which I ordered nine doſes to be prepar'd and taken as before. In the latter part of the tenth day he had a great blooding at the Noſe, and loſt about twenty ounces that way, tho we had let him blood and vomited him before; and he had a Stool or two every day while he took his Powders; yet with his blooding his Fever went off. He continu'd the Barley-decoction ſharpned with Vinegar for his ordinary Drink, and took the following Purge on the 14th in the morning.

℞ *Decoct. amar. purgant.* ℥iv. *Syr. de Rhamn.* ℥ij. *aq. Theriacal.* ℥ß. *M.*

This purg'd him five or ſix times very gently, and he recovered daily. *Note*, that his Pulſe was very high, and his face of a red and fiery color before the Hemorrhagie; which we did

did not very much endeavour to ſtop, tho he bled a Pint.

Obſervation V.

About the ſame time, when we had ſome very ſultry days, *John Wheeler*, in the ſame Ship, about 38 years of age, was taken with a coldneſs, loſs of ſtrength, a want of appetite, and a nauſeating of his victuals; his Pulſe was depreſs'd, and he had a pain in his breaſt: about 12 or 14 hours after came a violent heat, which made him very reſtleſs and dry. Obſerv. 5.

I order'd him to be let nine ounces of blood on the 9th of *July*, and that evening he took a Bolus of the Conſerve of Wood-ſorrel, and *Sal Prunellæ*; next morning ſix grains of *Tartarum Emeticum*, which began to work half an hour after he had taken it, and he drunk a large draught of thin Water-gruel after every vomiting: he vomited ſix times, had two Stools, ſlept four hours after, and was much eaſier. On the 11th he begun the teſtaceous Powder, of which he had nine doſes for three days.

days, three to be taken every day; all that time he went to ſtool once a day, and piſt a great deal; on the 14th he took nothing but the Decoction, I had ordered him for his ordinary Drink, and on the 15th he took the following Purge.

℞ *Pulv. radic. Jalapp.* 3ß. *reſin. Jalapp. gr.* iij. *Crem. Tartar.* ℈i. *M.*

This Purgative gave him eight Stools, and had done working by 12 a clock, after which he found himſelf a great deal better, his drought abating, and his Pulſe more natural, he called for victuals, and eat a little Water-gruel; and that evening he loſt ſix or ſeven ounces of blood at his Noſe, and recovered daily.

Obſervation VI.

Obſerv. 6. I ſaw one *John Wallin* on board the Hoſpital Ship, who was put on board her that day; he ſeem'd to have been a man of a very good habit of body; but his Blood running about like Lightning; his Pulſe beat 132 in a minute, he was very dry and delirious: he took that night Conſerve *Lujul.* 3ß. *Sal. prunell.* ℈i. in

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a Bolus with v. grains of Camphire. I ordered a large bliſtering Plaiſter to be laid to the Nape of his Neck, and one behind each Ear; they roſe very well, and were removed next morning, and the parts dreſt with the *Empl. de Melil. ſimpl.* and ſo he was freed from his Delirium: he reſted indifferently well that night, and next day took this Powder.

℞ *Occul. cancr. ppt.* ℥j *Sal. prunel.* ʒij. *Pulver. ſerpentar. virginian. gr.* xv. *M. ac divid. in* vi *p. æ. ac Capiat unam ter in die.*

Next day in the afternoon, a Clyſter was injected, which purg'd him thrice, and made him very eaſy and ſenſible; he drunk what he would of the following Decoction, and recover'd on board.

℞ *Radic. Oxylapat.* ℥ij. *aceto ſ.* ℥i *Scorzoner.* ℥ß. *Hord. mundat. M. j. Coq. in ſ. q. aq. font. ad Hordei crepituram, circa finem addendo Paſſul. Maj. integr.* ℥iij. *Colaturæ, per ſubſidentiam, clarificatæ, adde aceti acerrimi q. ſ. ad gratam aciditatem.*

Theſe, by the bye, are the fatal, but almoſt perpetual, conſequences of a diaphoretical practice in Fevers; eſpecially

pecially on young people, in a hot ſeaſon of the year, or a warm climate: for when they are put into a Sweat, they catch cold in the end, relapſe, take new doſes of *Diaſcordium*, and *Venice* Treacle, which (eſpecially when they are not allowed to drink liberally) diſſipate and deſtroy the ſpirits and ſerum of the blood, that it cannot be kept fluxil, but by the hot parts of thoſe Medicins, which break down the almoſt ſolid blood, and ſupply animal ſpirits to the laſt drop of blood, and ſo dye unexpectedly as in Hectick Fevers; only their Fate is harder, and their Exit not ſo deliberate, for they are kept mad and delirious all the while, whereas the other dye in their ſenſes.

Obſervation VII.

Obſerv. 7. At the ſame time I ſaw another who was put on board there, on the 16th day of his Fever; his Pulſe did not beat above 37 ſtrokes in a minute, he could not ſpeak, but ſtar'd, and made ſigns for drink. That night he had had three ſuch Plaiſters, as I mentioned in the former caſe, applied to his

his Neck and behind his Ears. He took now and then two or three ſpoonfuls of a Julep made of ℥vi. of Barley-decoction, ℥ß. of a Cordial Tincture, and ℥i. of Syrup of Clove-Gillo-flowers. This Cordial Tincture Mr. *M'kie* told me, he had made of the *rad. ſerpentor. virginian. Cochinel.* and Spirit of Wine; and, when by the uſe of theſe Medicins he had recovered his ſenſes, he began to uſe this Powder.

℞ *Ocul. Cancr. ppt. ſal. prunell. an* ℥i *pulver. radic. ſerpentar. virginian.* ℥ß. *M. ac Divid. in* vi. *p. æ. Capiat unam bis in die.* He recovered apace while in the Ship; but ſhe being ordered for *England*, our Patient in a day or two was ſent aſhoar at *Portſmouth*, to the care of Dr. *Smith*, and my moſt ingenious Friend Mr. *Heart*.

'Twould be an eaſy task to produce many other inſtances of this kind, but theſe which are faithfully related, may ſuffice to convince us, that this Method is ſurer than the Diaphoretical Practice. And therefore I ſhall proceed, firſt to give an account of our other conſtant ſickneſſes, and then of our interloping diſtempers.

Obſer-

Obſervation VIII.

Obſerv. 8. Mr. *Nobs*, Purſer to the *Elizabeth*, was taken after Dinner with a coldneſs and trembling, which laſted ſix hours; his Pulſe was all the while extremely depreſs'd, and beat not above 40 ſtrokes in a minute; then came the warmth, which firſt begun about the trunk of his body, and was afterwards diffus'd over all. As it encreaſed, he grew very reſtleſs, and his Pulſe became very quick and ſtrong; till at laſt he began to ſweat, and his heat abated proportionably as the ſweating encreaſed. He was well for the reſt of that day and all the next, but was troubled with a looſeneſs; and the third day he was taken ill again, and ſuffered over all the former ſymptoms.

The General Cure. 'Tis very plain from what I ſaid in the firſt part of this Book, that that viſcid and ſlimy *Lentor*, which firſt ſtagnates in the capillary Arteries, and then in theſe larger Veſſels, muſt be broken and divided, that it may be made a ſubſtance capable of being carried round the body without ſtopping.

ping or ſtagnating. And becauſe this Lentor has its ſupply from the *primæ viæ*, the Liver or other *viſcera* that are ſaid to ſeparate liquors, by ſome or all of theſe liquors being viſcid; we muſt endeavour to cut off and intercept that ſupply, and to break and render fluxil the liquors that are thus tough and viſcid. Now from which of all theſe this lentor proceeds and is ſupply'd, is not always very evident, tho ſometimes it may happen to be ſo. Let us firſt ſuppoſe then, that this ſupply comes wholly from the *primæ viæ*; and upon this ſuppoſition we may conclude, that thoſe things which empty the ſtomach and inteſtines of thoſe impurities will do the buſineſs effectually. And becauſe a *Vomit* performs that work with the greateſt certainty, then a Vomit would be all that's requiſit to compleat that Cure, and the more gentle it is, 'twould be more for the eaſe of the Patient and ſatisfaction of the Phyſician. But I have proved before, that the other *viſcera* may diſcharge ſome of their vitiated liquors into the blood, which not being chang'd into the perfect nature of the blood, they

ſtagnate

ſtagnate in the Capillary Arteries in that quantity and way, that are fit to produce the foregoing Phænomena. And they being in ſuch circumſtances, as make them fit to affect the blood, 'tis evident that thoſe faulty and vitious humours muſt be broken and divided, that they may be fitted to circulate with the blood without ſtagnating; and that the blood, which is thus affected, muſt be reduced to a ſtate of greater fluxility. If they had their viſcidity from the *primæ viæ*, that work could be done very eaſily; but 'tis certain that the blood may be infinitly chang'd, without any fault in theſe firſt paſſages; and the *viſcera*, that are now affected, muſt have their juices altered, or elſe they will ſtill be in a condition to give a continual ſupply, ſuppoſing the blood to be otherwiſe in a good condition. Now the only way that liquors, which ſtagnate in their channels, can be propell'd and made fluxil is, by ſome power that may compreſs, break and divide the liquors thus ſtagnating; and becauſe this breaking and dividing muſt be perform'd by ſomewhat, that contracts or violently compreſſes

the

the obſtructed parts, and breaks the ſtagnating juices; and this can only be perform'd by the contraction of the muſcles, and their compreſſing the *viſcera*, that are near them; therefore the moderate exerciſe of thoſe Muſcles will be very agreeable: but in our natural or voluntary contractions, they have not that violence, that is neceſſary to make a ſufficient compreſſion fit to break and divide this lentor. And ſince there are a great many Muſcles, that are obſtructed, and could have ſufficiently broken the ſtagnating liquors in the neighbouring *viſcera*, that cannot be moved and contracted by the power of our *Will*; ſome way muſt be contriv'd to make ſuch a violent contraction of thoſe Muſcles eſpecially, that are able to compreſs the neighbouring *viſcera*; and if we examine all the conſequences that attend the giving of any Medicin, we ſhall find none that exerciſes more Muſcles, and that with greater violence than *vomiting*; for not only the Muſcles of the *Thorax* and *Abdomen* are contracted with a prodigious force, and are able, by their contraction, to compreſs the

Lungs,

Lungs, *Stomach*, *Liver*, *Spleen*, or any thing that may be contained in them, and in all their capacity, but even the whole Muſcles of the Body are affected; and therefore 'tis *vomiting* only that can produce the required effect. Thus we have demonſtrated the way of cutting off the ſupply of this lentor, that is made by the *primæ viæ* and the *viſcera*, that are ſaid to contain liquors; ſo that if there were not ſuch a ſeaſon of the year, in which the viſcidity of the blood is much promoted and augmented, the blood extreamly weakned and diſpirited with repeated paroxyſms or otherwiſe, this diſeaſe might be conquer'd by theſe very means. But when the Air is foggy, moiſt and cold, and the blood weak, we muſt have reſpect to that, if we will cure our Patient; and ſuch things muſt be given, that may make the blood richer and maintain its fluxility.

We have an infinit number of Medicines, that are ſaid to produce ſuch effects; but the long, tedious and unſucceſsful practice of former ages convinces us of the contrary. We heard indeed a great deal of ſpecifick

Medicins

Medicins of oppoſit powers; but never ſaw any thing, that deſerv'd that name before the *Indian Bark*. We had diaphoretical and warming Medicins, that broke and divided the blood, and made it more fluxil for ſome time, but were ſo far from being able to keep it ſo, that on the contrary having deſtroyed the native ſpirits and ſerum of the blood, they rendred it more apt to ſtagnate and to be obſtructed. The *Indian Bark* then, or *Jeſuits Powder*, being by daily experience that Specifick we deſir'd, we ought not to neglect it, tho it was not found in a *Matras*. But not to inſiſt upon experience in a thing, where we have ſo many reaſonable proofs, tho *that*, of its ſelf, is a ſufficient proof: for we ſee how the ſinking and languiſhing Pulſe is rais'd by the taking of it, and that without any burning and extraordinary warmth; *i. e.* we find it has ſuch a power as is able to introduce a freer motion, which cannot be done but by freeing the confin'd ſpirits, that they may be ſeparated in due time and proper place. And ſince this ſetting the ſpirits at liberty can only be performed by breaking

breaking the viſcid blood, and this *attrition* is the thing required; therefore the Jeſuits Powder, *Quinquina*, *&c.* anſwers our deſire, and gives us what we require. Now, tho 'tis plain that the Jeſuits Powder produces this effect, it is not the Jeſuits Powder, as ſuch, or its name alone, that is able to charm and lull aſleep this intermitting Fever; but ſince we ſee plainly that it can do ſo, we ſhould give it in a ſufficient quantity to produce that effect; and when we give it, to be ſure it may be carried into the blood: For if this be not done, 'tis quite as good, if not better, to keep it in the Paper and look upon it, and from that to expect your Cure, than to take it into a foul ſtomach, full of thick impurities, there to be clogg'd up in impure matter, and perhaps to be carried out of the body with the excrements, or elſe to be carried in this condition into the maſs of blood to the misfortune of the Patient: or, if neither of theſe happen, given in the time of a *Looſeneſs*, to be immediately carried off by Stool, and never reaching the blood to communicate its *efficacy* and *vertue*.

As

As to the way how its effect is produced, I know not, nor ever ſhall, without a revelation from that Being, who knows the determined motion, ſize of the parts, and the different coheſion of matter, that produce the modified bodies we ſee; and yet, I think, there may be ſufficient certainty to aſſiſt us pretty exactly in doing ſuch things, as the ſupport of our infirm nature may require. For, conſidering the nature of intermitting Fevers, of which we are as certain as of any thing in Phyſicks, and that we have a Medicin, that alters the condition of the blood and makes it more fluxil; and this fluxility being acquir'd in a certain way, therefore the China China is endu'd with a like power to that which makes the blood fluxil. This knowledge we have of the Barks efficacy, without the knowledge of its conſtituent parts is ſo ſure, that we can deduce very certain and almoſt infallible Corollaries from it, and this one for inſtance; If this Powder be able to break, divide, and make fluxil our viſcid blood, then in a ſtate where the blood is faulty thro its *fluxility*, *richneſs*, and

extra-

extraordinary motion, this Powder is never to be given; ſo that in a containing Fever, where the blood is ſuch, the Jeſuits Powder muſt be very noxious; and 'tis very obvious to every mans Obſervation, that the more the blood is in theſe circumſtances, the conſequence is always the more fatal. I cannot omit what that candid Relater of Medicinal caſes Dr. *Sydenham* ſays, in the 36 *p.* of of his Letters, as they are printed in the Edition of his book in 1685, at *London*: '*At in* Peſte *atque* Epidemicis 'continuis, *quæ eandem ordine excipient*, 'debellandis, *non alios effectus ex ejus uſu* 'expectare licet, *quam eos, quos hodie in* 'Pleuritide, Peripneumonia, Anguina, 'ac *id genus* Febribus inflammatoriis 'videmus, *quibus non tantum non prodeſt*, 'ſed & *plane obeſt*. But in curing the *Plague* and *continual Epidemicks*, which will orderly follow theſe, no other effects are to be expected from *it*, than theſe we now find it produces in a *Pleuriſie*, *Peripneumonia*, *Quinſey*, and ſuch other *inflammatory Fevers*, in which caſe 'tis not only uſeleſs, but evidently hurtful. But whatever may be thought of my pretended certain-

certainty; 'tis at leaſt as well grounded as a great many maxims in the Hydroſtaticks, *&c.* which no Ship-Carpenter or Man of ſenſe doubts of; but on the contrary, finds all his calculations and inferences orderly made, to anſwer his expectation in his practice.

The Chymiſts at preſent are engag'd in an extraordinary buſtle and ſmoak with their fire and *menſtrua*, to reſolve by their Inſtruments which they do not underſtand, the conſtituent parts of this Specifick; and at laſt tell us that 'tis a *Roſin*, and that its power in curing Agues is lodg'd in its Roſin, which is as much in plain *Engliſh* as the firſt queſtion; and we underſtand juſt as much, when they tell us of its vertue being in its Roſin, as if they had told us, that it is in the Bark. We know indeed that its tincture, made with any ſpirituous liquor, is the ſtrongeſt, and that becauſe 'tis the property of Roſins to be beſt diſſolv'd in Spirits; 'tis plain that this Bark contains a great deal of Roſin, which is all that can be concluded from this experiment. But to proceed, let us ſuppoſe, that all the

vertue is extracted in this Roſin, which cannot be pretended (becauſe of a like experiment of its yielding its ſanative power in common water) yet we ſhall ſtill be as much puzzled about the way of this Roſins working, as the working of the Bark in Powder, before it was a Roſin. And if they think they have anſwered the queſtion, by telling us that it produces theſe effects, as it is a Roſin, then all other Roſins will do the ſame; and therefore, they may truſt to the Roſin of Jalap, or any other they're oblig'd to by their principles; and we ſhall have an opportunity to obſerve the concluſion.

The other way, that has been taken, to account for the vertue of the Bark, is by imagining it to be *aſtringent*; a power quite deſtructive of the requiſits, we have clearly laid down for curing an Ague; and no leſs repugnant to common obſervation, as I ſhall demonſtrate. What has been the foundation of this aſſertion, I could no where find out ſo clearly, as in a Diſcourſe written by one of the Members of the Royal Society, I think in the year 1678; where confuting

ſuting the power of the Bark in curing Agues, he ſays, that if the Patient be troubled with a *looſeneſs* while he is taking the Jeſuits Powder, it can have no ſucceſs; therefore, ſays he, the Bark has its power in a contrary way, and is *aſtringent*; then he ſubſumes for his own purpoſe, that, becauſe it is aſtringent, it muſt be very hurtful in a diſeaſe that muſt be cur'd by evacuation. To paſs by at this time, our Author's neglecting to prove that this diſeaſe muſt be cur'd by evacuation, which I very much doubt for the reaſons intimated before; I have ſaid enough already to evince the weakneſs of his Obſervation. 'Tis ſtrange, that one ſhould expect, that any kind of Medicins, which produce not their effect in a minute, but require ſome hours, at leaſt, to affect the blood; ſhould exert their vertue, when they never come thither; and this being the caſe of the Jeſuits Powder in a Looſeneſs, we may eaſily conclude, that the Quinquina will not cure an Ague in that caſe, whether it be aſtringent or not. By the bye, ſince I have had occaſion to examine this argument

againſt the Barks power of curing Agues, I cannot forbear taking notice of another very good argument this Author brings for the poiſonous qualities of the Bark, and that is an experiment from its hindering the fermentation of Yeſt and Wort; that, becauſe if a due quantity of the Jeſuits Powder be caſt into Wort, before the Yeſt is added, the Wort never ferments, and therefore this Powder is poiſonous. I confeſs, I know not how to anſwer an argument which I do not comprehend; but if every thing that hinders the fermentation of Yeſt and Wort be poiſonous; what muſt become of us poor Mortals in the poiſonous times either of a froſty or very hot ſeaſon, for the Brewers find their Ale and Beer ferment but very ill in ſuch ſeaſons: and beſides, Sugar, Spirit of Harts-horn, *&c.* poured into Wort in a due quantity hinder its fermentation; yet they were never reckon'd among the number of Poiſons: But, on the contrary, if I thought the Hypotheſis of Acid and Alkali tolerable, I ſhould like the Bark the better for the experiment this Author has

has helpt me to: for in that way, the blood in an Ague is viſcid, by the power of the coagulating Acid, which can only be deſtroy'd by a powerful Alkali, ſuch as this experiment proves the Bark to be.

Now as for the aſtringent power aſſerted, becauſe it is ſo, and for no reaſon yet aſſign'd, is very ridiculous: and if it cur'd Agues as it is aſtringent, then as ſtrong, or more powerful aſtringents would have the ſame effect, which is contrary to any trial or obſervation can be made: on the contrary, we know 'tis uſed every day with the beſt ſucceſs in Hyſterical Fits, and the Suppreſſion of Womens Monthly Courſes, where no body ever adviſed ſo powerful an aſtringing Medicin, as they would have the Bark to be.

'Tis true, we have ſeen ſome ill ſymptoms appearing after the giving the Powder; but the Queſtion is, whether theſe ſymptoms are the Diſeaſe's, the Bark's, or the Phyſitian's; and this I ſhall endeavour to reſolve, by following out *Helvetius*, a Phyſitian in *France*, who has lately writ a Book, he dedicates to the *French* King,

and allows a great many of them to be owing to the Powders being given by the Mouth, and contrives a new way of giving it, and that by Clysters. I shall first then enquire, how far his allowance is good, and to be follow'd, and what's to be thought of his new practice; which, I think, will be very obliging. But before I do this, 'twill be necessary to shew, that I have not forgot my Observation; and therefore when I have related one or two more I shall come to those Reflections.

And first, because Mr. *Nobs* was troubled with a Looseness; and that it might not hinder the Operation of the Vomit, I intended to give him for the preceding reasons, the night before I prescrib'd him the following Bolus to be taken goiug to bed.

℞ *Conserv. Ros. rub.* ℥ß. *Sanguin. Dracon.* ℈l. *Laudan. Opiat. gr.* jß. *Syr. de Mecon. Parum ut f. Bolus.*

Next day, being to have the Fit about two a clock in the afternoon, I ordered him, upon the former design, vi grains of *Tartarum Emeticum* to be taken about noon; he vomited five times, and drunk not so much after every

every Vomiting, as I allowed my Patients in Fevers; that the compreſſion by the contraction of the Muſcles might be the greater, he went once to Stool, and about the end of the working his coldneſs began, and laſted only two hours; then ſucceeded a very ſharp heat, which went off ſooner than before, by ſweating, which was very plentifully: for I had deſired him to bear with the hot Fit, and lie very cloſe, that he might ſweat, elſe I would give him no Medicin till the next Fit; which he did: and being temperate, the blood being now comminuted, and ſufficiently fluxil for its motion, I ordered him to begin the Powder I had caus'd to be made up, into an Electuary, that it might be convey'd into the blood in its healthy ſtate; that it might too, comminute more eaſily any viſcid matter that would be convey'd to the blood by any of its ways of ſupply; and in that quantity I thought reaſonably could deſtroy the viſcidity of one paroxiſm, and this he took in as great quantities, as he could eaſily digeſt before he took more.

℞. *Pulv. Chin. Chin. ſubtiliſs. pulverat* ℥j *Conſerv. Roſ. rub.* ℥ß. *Syr. e Chalyb. q. ſ. ut f. Electuar. Cujus capiat quantitatem Nucis Myriſticæ majoris, tertia quaq; hora, ſuperbibendo Vin. Hiſp. Cochl.* ij.

In the Doſe he took before Bed-time, I ordered him j. grain of *London Laudanum.* He miſs'd of his Fit, and din'd at five a clock in the afternoon upon a Chicken, and drunk a Glaſs or two of red Wine at Dinner. Next morning he began an Infuſion I had ready for him to take of, till his blood was ſtrong and ſhould recover its ſtrength, and 'twas this,

℞. *Rad. Gentian.* ℥ij. *Scorzoner.* ℥j. *Serpentar. Virginian.* ℥ß. *Summitat. Centaur. Min. M.* ij. *Fl. Chamom. M. j. Cortic. Aurant.* ℥ß. *Winteran* ℥ij. *M. ac infundant. per Biduum in Vini Xereſenſ. generoſiſs.* ℔ ij. *Dein capiat Cochl.* v. *bis in die.*

By the uſe of theſe Medicins he recovered his Health, without the leaſt ſuſpicion of a Relapſe.

Obſervation IX.

Obſerv. 9. Mr. —— *Lieut*, of the ——, was taken ill after Dinner with a Coldneſs,

Coldneſs, which laſted an hour and a quarter; his Pulſe was depreſſed, and beat about 50 in a minute; for he being of a thin habit of body, his blood very warm, it beats about 80 in that time: he had a pain in his head, then came the heat, which began about the Trunk of the Body, and was ſenſibly diffus'd over the reſt; it laſted three hours, after which he began to ſweat and judg'd his Fit; it recurr'd the third day incluſive, and had his cold Fit not above half an hour, but the hot Fit laſted ſome ſeven or eight hours before he began to ſweat; next day I was ſent for, and ordered him iij grains of *Tartarum Emeticum* to be taken an hour and a half at leaſt, before we expected the Fit: he vomited ſome ſix or ſeven times, and went twice to Stool; I ordered him to drink largely between his endeavours to vomit: when the Medicin was almoſt done working, the Fit began to ſeize him and the cold Fit laſted little more than a quarter of an hour, and as it was a going off, I order'd him to take the following Powder.

℞. *Pulver. Gaſconic.* ℈ *Laudan. opiat.* gr. ß. *M.*

After he had taken it about twelve minutes he fell asleep, and slept almost two hours; but before he was awake he was in an excellent Sweat, so he lay still till the end of the Sweating, and thereafter begun this Electuary.

℞. *Pulver. Quinquin. subtiliss.* ℥j. *Conserv. Acetosel.* ʒvi. *Syr. e Succ. Citr. q. s. ut f. Electuar. Molle. Quod capiat ad magnitudinem Avellanæ tertia quaque hora superbibendo Vini rubri Gallici Cochl.* ij. *vel tria.*

By the use of this Electuary he miss'd his Fit; and began next morning to this Infusion, I ordered for the strengthning his blood,

℞. *Rad. Gentian.* ℥j. *Scorzoner. Helen. an* ℥ß. *fl. Chamom. M.* ij. *Summitat. Cent. min. M.* j. *Baccar. Juniper.* ℥ij. *Cort. Aureant.* ℥ß. *Tart. alb. crud.* ʒij, *pptis s. a. affund. Vin. rubelli* ℔ ij. *Stent per biduum in Infusione, dein capiat colatur. claræ Cochl.* iv. *bis in die. Repetatur Infusio super eadem Medicamenta ad alteram vicem.*

He continued in the use of these Medicins, and drunk both the Infusions without any thing of a Relapse. All the time I allowed him to eat any kind of meat that was easily digested, and

and drink a glaſs of Wine or two in a day.

Obſervation X.

Since the laſt two hiſtories are two different caſes, and we ſee required a different way of giving the *Cortex*, that it might not overheat the laſt: now, that I may keep up the variety, which is always delightful, tho perhaps 'twere neceſſary to have two or three of one ſort, which is too long at this time, and it may be I may have another opportunity for this: I muſt ask the liberty not only to go into another Ship, but ev'n go back one year to give you an Obſervation of a poor Man, that was miſerably afflicted with an Ague for eighteen months. Obſer. 10.

This was one Mr. *Humble* in the *Grafton*, to whom I was call'd *May* 1694, at *Spithead*, by Mr. *Leckie*, who was then Surgeon to that Ship. He was firſt taken with a Tertian Ague, for which he was put aſhore; and after he had ſtaid out his time, he came back with it upon him, for he was ſome Officer or another, and ſo would not leave the Service; and expecting his

his Cure aboard, he was taking ſomething all that time, but to no advantage. So, when I was call'd he had a Quartan, and his cold Fit uſed to laſt him ſome four or five hours, his hot or Fever Fit one hour, or an hour and a half, and then ſweat: he was brought very low. I ask'd him when he expected the next Fit, and he told me to morrow about eight in the morning; for it ſhifted forward and backward, from Tertian to Quotidian, from Quotidian to Tertian, from a Quartan to a Hemitritæa, and from that to a Quartan again. I ordered him to take iv grains of Emetic Tartar that morning, about 6 a clock; which had juſt done working as his Fit begun to come upon him; his cold Fit after his Vomit laſted two hours, his hot Fit two hours, and ſo went off by the Sweating. I had been ſpeaking to the Surgeon about the giving him the Jeſuits Powder; but he told me he had been ſo often let blood, purg'd, and taken ſo much of the Powder aſhore and aboard, that he could not take more; and therefore I was reſolved to try the Powder, my learned Collegue Dr. *Morton* recommends

mends in his Book of Fevers.

℞. *Pulver. fl. Chamom.* ℥j. *Sal. Abſynth. Antimon. Diaphoret. an* ℥ß. *ac capiat* ʒß. *tertia quaque hora, ſuperbibendo Vini cujuſvis generoſi Cochl.* iij.

He took his Powders very orderly, till he had ſpent that vaſt quantity, but without the parting of his eighteen months Companion. He did no more till the next return, but drunk of the following Infuſion.

℞. *Rad. Gentian. Raphan. Armorac. an* ℥ij. *Zedoar. Serpentar. Virginian. an* ʒij. *Summitat. Centaur. min. Card. Benedict. an M.* j. ß. *fl. Chamom. M.* j. *Cortic. aurant.* ℥ß. *Winteran* ʒij. *Limatur. Mart.* ℥j. *Tart. alb. crud.* ℥ß. *M. ſ. a. ac infund. in Vin. Hiſpan. generoſiſ.* ℔ iij. *Stent per horas* vi. *in Baln. aren. ac bibat Cochl.* v. *ter in die.*

And that morning he expected his Fit, he took the preceding Vomit, which wrought very well, and his cold Fit laſted not above an hour, and his hot an hour and a half, and judg'd the Fit by Sweating. Things ſucceeded ſo well, I deſired he would try the Jeſuits Powder once more, and if it had no ſucceſs, he ſhould be at his choice; he was perſuaded, and had it made up in this form. ℞.

℞. *Pulver. Patrum* ℥iß. *Conſerv: Roſ. rub.* ℥j. *Theriac. Andromach.* ℥ij. *Extract. Gentian.* ℈j. *Sal Abſynth.* ℈ij. *Syr. e Chal. q. ſ. ut f. Electt. molle: cujus capiat quantitatem Nucis Moſchatæ maj. tertia quaque hora, ſuperbib. Vin. Canarin. coch.* iv.

And if he ſcap'd his Fit, to continue with the former Tincture till he recovered his ſtrength; but the next day, after I left that Ship, I was taken with a violent containing Fever, which laſted five days with the practice before; and e're I was fit to go abroad, our Fleet was divided, and that Ship went to the *Streights* in company of the reſt, that have made *England* the Admiration of all *Europe*, under the command of the Right Honourable Admiral *Ruſſel*, who muſt needs make a great figure in the Hiſtory of after-ages.

I enquired, tho, of one of the Surgeon's Mates, after this *Humble*, who, he tells me, is now in good health; and recovered, he thinks, before he left the *Engliſh* Air. And thus having ended the Obſervations, I trouble you with, of Agues, I proceed to the Conſiderations about *Helvetius*'s Bark-Clyſter Practice.

The

The Reaſons, he ſaith, in the 4th page, made him look out for another way of giving the Bark than by the Mouth, are the complaints ſome make, of an unſupportable weight and a violent pain in their Stomach: others finding their Thorax chang'd very much, from what it uſes to be in a natural ſtate, and ſuch an extraordinary heat in their Breaſt as it were dried up: and laſtly, becauſe there's an abundance of people, that make reſolutions every day never to take it more, tho they have been cured in this way. Paſſing the known inconveniencies of the Quinquina, and the general complaint ſick people make that way; beſides the particular grievances of its diſagreeable and ill taſte, its bitterneſs, which we can never remove from this Medicin, in whatever way give it, provided we take it in at our Mouth; and 'tis ſtill the more incommodious, that, notwithſtanding the averſion ſick people declare againſt it at firſt taking, yet muſt needs renew this troubleſome and nauſeous impreſſion, by taking it a great many times a day, for ſix weeks at leaſt: not accounting upon our neceſſity to begin

Places marked from this Author's Book, p. 4.

5.

6.

begin its uſe a ſecond time upon the occaſion of a Relapſe. And therefore 'twas, that thinking upon the train of diſagreeable circumſtances, that attend this Remedy, I have diſcovered this more convenient way of giving it, whereby we may enjoy all its good effects, and evite all that's troubleſom in it. And this way is no other than by giving it in Clyſters.

7. Therefore he ſays, we muſt take an ounce of the beſt Quinquina in Powder, and mix it well, without any addition, with a Quart of milk-warm Water.

In Intermitting Fevers this Clyſter muſt be given in the end of the paroxyſm, and muſt be repeated thrice every day, till the Patient is perfectly cur'd, which is not long e're 'tis done; for 'tis very extraordinary to ſee another Fit, very rarely two, and I, almoſt never, ſee a third. After he is 8. cur'd, we muſt be ſure to take the like Clyſters for twelve days more, one in the morning and another in the evening for the firſt ſix days; and one in the evening only for the laſt ſix. And becauſe 'tis very neceſſary, in 9. this practice, to keep the Clyſters as long

long as is poſſible; and there be ſome people that can keep them but a very little time, we muſt add for thoſe, half an ounce of the Syrup of White Poppies to the Powder of Quinquina, which will mightily conduce to the keeping the Remedy without any trouble.

We muſt obſerve, that thoſe that 12.
can keep it but a little time, muſt continue its uſe the longer, to do that by a greater number that cannot be done by one, and ſo to promote the Cure. This muſt not only be underſtood of thoſe, that take the whole Doſe, but of thoſe too, that take but a part.

There's nothing amongſt all the 15.
ſymptoms that attend Fevers, that 16.
can forbid the uſe of this Remedy, but the Swelling of the Belly. So there's no more to be obſerv'd, but that as there are ſome people that cannot keep this Clyſter; ſo there are others that give no further account of it, and they find themſelves ſwoln as 'twere, and puff'd up; and therefore 'twill be their beſt way to take a purging Clyſter once in two days, which will help them to disburthen it: and

'tis

'tis not beſide the purpoſe to take notice at this time, that thoſe Clyſters not having a purgative faculty, and not being given for that end, the ſick people need not be diſquieted or concerned, if they ſee not an Evacuation of Bile and other Humours; as in our ordinary Clyſters.

31. 'Tis evident then, ſays he, that the ſick perſon ſhall be no more offended with its bitterneſs, ſince he's to take it no more by the Mouth; beſides he can find that weight in his Stomach no longer, becauſe the thing that produc'd that effect, is no more there.

32. But to get over the inconvenience of warming the Patient he takes a wonderful way; '*A l'egard*, ſays he, '*de la Chaleur, il eſt certain, que les parties groſſieres du Quinquina, qui en ſont la ſeule Cauſe, ne ſejournant plus dans le corps qu'autant de temps qu'il en faut a la Chaleur naturelle pour le digerer & en tirer ce qu'il a de volatil & de ſalutaire, le marc qui en reſte etant rejette auſſi-tot, ſans etre oblige paſſer par toutes les voies qu'il parcourt quand il eſt pris par la bouche, le corps ne peut que profiter de tout ce qu'il y a laiſſe d'utile, ſans jamais etre incommode de tout ce qu'il pourroit

'pourroit avoir de peſant, d'embaraſſant
' & de nuiſible, qui eſt ce qui cauſe le
' Chaleur dont on ſe plaint tant.

Touching this heat, ſays he, 'tis certain that the groſs parts of the Powder, which are its cauſe, ſtaying no longer in the body than is neceſſary for the natural heat to digeſt it, and to extract its parts that are volatile and wholſom; and the Maſh that remains, being caſt out of the body, without being obliged to paſs all thoſe ways it goes alongſt, when taken in by the Mouth: the body cannot but reap a vaſt advantage from all the uſeful parts that are left, without being, in the leaſt, hurt by any thing of it that's heavy, embarraſſing and injurious, which are the things, that make all thoſe heats they complain of. He adds in the next paragraph, that the people that have the Piles, are the only to whom he gives not theſe Powder-Clyſters; either not in ſo great a quantity, becauſe the rough Powder, rubbing up the veſſels in the paſſing, is apt to provoke the Piles, or elſe he gives a ſtrong decoction of it, which does almoſt as well, and entirely prevents this inconvenience,

Then

39. Then, he rallies all his ſcattered proofs he had brought for the Cures being more certain by taking the Powder-Clyſters, than in any way it can be taken by the Mouth: for firſt, it is given in a greater quantity than it can be by the Mouth; ſecondly, 'tis always given in ſubſtance, and ſo has the greater force: and thirdly, the ſubtil parts, which only act upon the ferment of the Fever, and deſtroy its ebullition, can inſinuate themſelves eaſier into the maſs of blood by the orifices of theſe veſſels, that open into the Inteſtins: and laſtly, experience puts this more ready and ſure way of curing beyond diſpute.

Thus having pickt out almoſt all this Author ſays, either to the diſadvantage of the Quinquina's being taken in at the mouth; the benefit of his own way of giving it, and the conſequences of that: I muſt confeſs the World is oblig'd to any one that endeavours to better any Science by uſeful and well eſtabliſhed Theories, or Intimations to perfect its Practice, by diſcovering ſuch inſtruments and helps, that can make it more ſure: yet, I think, a man that communi-

cates

cates any thing, may claim and arrogate a little too much to himſelf; except the practice or opinion he advances be, without controverſy, better than thoſe that were eſtabliſhed and thought of before: and therefore to ſpeak my mind freely, without a Navy Phyſitian's declaring war againſt a *French* Doctor, I think that this Trial may ſtand us in very good ſtead, upon the pinch of ſaving the life of one, who rather chuſes to die than taſte this Medicin; and of theſe there are very few: but I ſhould judge that man very raſh, that would recede from the known way of giving the Jeſuits Powder he has found ſo ſafe, that nothing can be more; and would go to a practice ſo very doubtful, and hardly preſs'd with the ſame difficulties, can be brought againſt the taking it by the Mouth, upon any leſſer conſideration; as we ſhall ſee immediately by the anſwering his Arguments, which I ſhall do with as great brevity and clearneſs as I can.

As to the weight and pain ſome feel in their Stomachs, after having taken the Jeſuits Powder, 'tis certainly a very great inconvenience; but ſhall be

be judg'd by all the world, if that ſwelling they feel in their Bellies be not quite as ill, and can ſooner breed a Dropſy, Jaundice, *&c.* than any diſeaſe that can be ſo ſoon brought on by it: beſides, if we will be at the trouble to look back to what I have ſaid, in the firſt part of this Book, about that ſymptom of an Ague, *the weight in the Stomach*; he ſhall ſee it clearly made out, that this weight is nothing but a heap of undigeſted and ſlimy ſtuff that's lodged there; and therefore of it ſelf is apt to make the neceſſary ſupply, to keep up the force of the Ague; and intercept too, any Medicins that are given in by the Mouth for its Cure, as I have ſaid ſince I begun to ſpeak of Agues. And if he would perſuade us to the uſing his Clyſters in theſe circumſtances, we ſhall never be able to cure this Ague, tho they were ſuppoſed to have a hundred times the force he pretends to: whereas if we give a Vomit to make a clear paſſage, we ſhall feel no ſuch inconvenience, but eſpecially if the Fit were well judged before we began our Medicin; and ſo this complaint comes more from the neglect of

ſomething

ſomething that ſhould been done, than from any defect in the Bark; unleſs, perhaps, it may add its own quantity to this naſty maſs, and rarify that too by its ſubtile parts. And ſo the Argument will go no further than this. Opium, Steel, Antimony, *&c.* have been given in very ill times, and too great quantities, and no doubt there's been abundance kill'd ſo; but for all that, ſhould we leave off the uſe of theſe Medicins? no ſurely; and they will prove uſeful and noble Medicins in good hands. But why may not our Author try, what a decoction of the Powder he uſes for Clyſters upon certain occaſions, can do, to ſhun this inconvenience of the Powder; eſpecially ſince our learned Collegue Dr. *Morton*, had publiſhed, ſome two years before this Author wrote his Book, ſuch a decoction for this very end; which would have prevented moſt misfortunes from that hand, when we know not this fit time to give a Vomit.

Then for the ſecond inconvenience, 'tis much of the ſame kind; and if any one will conſider the proof I brought for the way how the Bark had its effect,

fect, and the Corollary I deduced from it, ſhall not be very much puzzl'd to find out, that 'tis only thoſe that are of thin habits of body, and whoſe blood is thin, eaſily rarify'd, and incline to be hectical, that find this *burning Heat* our Author aſſigns, and after they have taken the pure powder; and I dare appeal to himſelf, or any man of practice, if ever they found this accident but in theſe circumſtances; and a wiſe Phyſician can eaſily provide againſt that, as I have endeavoured in part, by giving the *Cortex* as in my 9th Obſervation. but to ſee what a miſerable ſhift he takes to weather this difficulty is wonderful, from what he ſays in the 32 page; and if he had done any thing he ſhould firſt told us, what the ferment of the Fever is he talks of in the 39 page; how the parts, and what parts are fitteſt to bring it under; and laſtly, what veſſels theſe are that have their mouths open into the Inteſtins; none of theſe things he has told us any thing of, yet they were neceſſary to be known: and of all things in the world I doubt moſt of his certainty in the citation from the 32 page; and would have thought

thought the groſs parts of any body the leaſt capable to produce heat; and to guide all this right, he tells us, that *Nature* keeps it juſt ſo long, and not one half ſecond longer, than was neceſſary to ſeparate thoſe ſanative parts from its groſſer hot parts; this is indeed wonderful, but ſhe that can do all this, why did ſhe put him to the trouble of contriving Syrup of White Poppies, to cauſe ſome to keep their Clyſters longer, and purging Clyſters to help others off with theirs; I'le help him out for once, and remember him that Nature's of the ſhe-kind, and he's an old man. But of this Banter too much. The reſt of his Citations are about the way of giving it, which I have nothing to do with here; tho I thought fit to ſhew them, if any one be for them; and all the reſt may be comprehended in this, that they may be better given his way, becauſe, as he ſays, the Bark is given in ſubſtance, and in a greater quantity. And firſt, I believe all the Phyſitians in *France*, at leaſt all or moſt here, give it in ſubſtance, and have done theſe thirty years, as well as *Helvetius*; and in a way too, that

our ſix Drachms muſt turn to a greater account than his three ounces, and allow him ten more; and this we ſhall make very plain, by conſidering that betwixt the lower end of the *Duodenum* to the end of the *Ileon*, there are infinite numbers of Lacteal Veſſels to be ſeen, whereby this Powder, its Tincture made in the Stomach, and other parts, may be very eaſily carry'd into the blood, and by which is carry'd of one ſubſtance and another, at leaſt, 3, 4, 5 pounds in a day, and ſo may be a very good way for 3 drachms, ℥ß, ℥vi, or ℥j, of this Powder, however digeſted and prepared in a clean Stomach; whereas in his way, all the Lacteals that are ſaid to be there, are ſuppoſed upon ill made experiments, and not one to be ſeen; and ſo, I think, our ſix drachms can produce more powerful effects than his thirteen ounces, we have allow'd him; but ſuppoſe all the Colon were as full of Milky-Veſſels, as the Milky-way is full of Stars (which we ſee he muſt not pretend to) yet I'm in the opinion he could not much better himſelf; for his Clyſters could get no great length;

length; which will be very evident to any one, that will bring into his thoughts, or lay before his eyes the Guts in their natural posture, and any one with a Clyster-Syringe impelling the Liquor; I say, if he considers this, he shall have no great difficulty to agree to my assertion: for first, if they were supposed full, then 'tis evident the resistance of the Excrements were to be accounted for; and perhaps this would do the business: but now, we'll suppose them perfectly empty, and their sides flaccid, as we see them at that time; then, upon the one hand let us remember, that the motion they have is from the Stomach downward, and that they are tensile; then next, that the Colon, where it joins the Straight Gut, lyes not *rectum* with the cavity of the Straight Gut, but cuts it at oblique angles; and upon the other hand all the force this impell'd liquor has, is only by the compressing the sides of a Bladder, or a more valid propulsion by the Syringe; and therefore passing the small resistance from the motion of the Guts, there's first so much moti-

on loſt by raiſing the ſides of the Straight Gut, whereinto it may be propell'd without any other; but ſo ſoon as it comes to the joining of the Colon, it muſt reflect at every ſection of this Gut, and the reflection too, is to be made upon a ſoft, tenſil body, which is more than enough to overcome a ten times greater force, than can be conceiv'd to be given to this liquor by the propulſion by the Syringe. And therefore, ſince the Straight Gut has no lacteals, and the Colon were ſuppoſed to have; yet his Clyſters not going any length there, could turn to no great account; at leaſt, not the twentieth part, very modeſtly ſpeaking, as the other way.

But next, for the convenience of this Practice, I think 'tis the moſt inconvenient could have been contriv'd; for who can bear fifteen Clyſtering days, and to take about twenty four Clyſters in that time; and then as many in caſe of a Relapſe: this is not only one of the moſt troubleſom Practices, but the moſt expenſive that can be by the Jeſuits Powder; for ſuppoſing an Apothecary ſhould let us have them at

Crowns

Crowns apiece, this is no leſs than 12 *l.* for theſe 48 Clyſters, beſides other Medicins, which is a great deal too much for the moſt that grudge 4ß. and a Crown for an ounce of the Powder, which always cures them with the help of ſuch a tincture I have ſpoke of in my Obſervations: and therefore by this time 'tis plain, that *Helvetius*'s Practice is neither ſo reaſonable, nor ſo convenient, as the giving the Powder by the Mouth; and the misfortunes complain'd of are truly the Phyſician's, and none of the Bark's: but we muſt allow him that the taſte will not be ſo ungrateful, as when taken our way; tho in ſo many Clyſters it will be felt, as I have found in curing of ſome very tender People of *Claps* by *Clyſters*, which in three or four days became almoſt as nauſeous, as if they had taken Medicines by their Mouth; yet at beſt this is but an inconvenience to a few, for a ſettled inconvenient, expenſive, and unreaſonable Practice.

Obſervation XI.

Obſer. 11. The Scurvy.

George Manning, aged 27 years, of a bilious Conſtitution, and a thin habit of body, was taken, on board the *Elizabeth*, with an out-breaking of abundance of red ſpots upon his Legs and Arms; a great many of thoſe upon his Legs became of an olive colour, yellow, blue, and black.

'Tis evident from what I ſaid before of the *Scurvy*, and as that is really diſtinguiſhed from the *Melancholia Hypocondriaca*; that the fretty, rarify'd, and diſunited parts are to be made cloſer, and of a ſtricter coheſion: and thus the ſmall parts of the blood, not being ſeparated in ſo great a quantity, in the brain, by the perſpiration, into the Inteſtines, *&c.* there can be no ſuch feveriſh affections, faintings, quick and ſlow pulſes, eruption upon the skin, *&c.* as we ſee every day. Now this compactneſs and ſtricter coheſion, can only be acquired by ſuch Medicins, that, by their *quantity*, or of their own nature, can give body to the blood, or make

that

that more compact; which muſt be in a natural ſtate, and produce every thing that is natural, ſo ſoon as it acquires this natural coheſion. Now, aſhore, we have really great numbers of Medicins, that anſwer this deſign, which can produce wonderful effects, when given in time, and in a way that this view ſhews us. Thoſe are all the Medicins, we call *temperate*, beſides thoſe that are Analeptical, and moſtly preſcrib'd in Hectick Fevers, into which this diſeaſe naturally runs, tho ſooner when helpt on by the uſe of the common Antiſcorbuticks.

But at Sea, where all the victuals, that are for their nouriſhment, encourage this ſickneſs ſo much, and encreaſe it: and all the proviſions of Medicins, that is made for our Sea-ſickneſſes, have no reſpect to that: I think it not unreaſonable to acknowledge that diſeaſe not to be cur'd at Sea.

Yet I was willing to make the beſt I could of our Patients in Scurvies; and therefore, that the Medicins we have might have the better effect, and the Chyle, that's very often the

beſt alterative, might be convey'd in its full force; I order'd him a Vomit of ℥ß *Sal vitriol.* in ℥iij of *Oxymel* of *Squils*, to be encouraged with large draughts of thin Water-gruel; he vomited three times, and an abundance of naſty ſtuff: then I ordered him to take as little of his Beef or Pork, for his Meal, as poſſible; and rather to live upon Burgoo, or Water-gruel; his ordinary Drink was Barly Decoction, to every quart whereof I ordered ʒij of *Syr. de Alth.* to be added; and for Medicins, I preſcrib'd him the following Electuary to be taken of thrice a day.

℞. *Pulp. Paſſul. maj.* ʒiij. *Conſ. fl. Cynosbat* ʒij. *fl. Lujul.* ʒiß. *oc. 69 ppt.* ℥ij. *Syr. e Suc. Limon. q. ſ. ut f. Elect.*

After theſe Medicins were taken for three weeks, which time he was very exact in following directions, he recovered apace, and came to his perfect health.

Obſervation XII.

Obſer. 12. *Thomas Leonard*, in the ſame Ship, and much of the ſame habit of body, and conſtitution with the former, was

was troubled with red, blue, and black ſpots, which run into one, ſwell'd and became a ſtinking fetid Ulcer.

His Ulcers were dreſt, and he had the ſame Diet, and Medicins, with what elſe the place would afford, to that deſign: he was a little better, but having no proſpect of a perfect Cure was ſent aſhore, where he recover'd his former health.

Theſe being all that had a true Scurvy, in the whole Summer I was in that Ship, I very willingly leave off this melancholy Practice of a diſeaſe, that's put out of our power to be cur'd at Sea; and at Land too, is one of the moſt troubleſom, as every one, that knows its practice, unanimouſly acknowledges. But, before we leave this ſubject, I'm oblig'd to remember my Brethren of the Navy, that of all the ſickneſſes in Medicins, *Evacuation* is to be done here with the greateſt diſcretion. There is no ſickneſs where blooding can do more harm, and is of greater advantage; vomiting and purging Medicins work more violently, and in leſſer doſes; and every purgative that has Aloes or

Scammony, for their ingredients, in any quantity, are intollerable; and heighten the diſeaſe beyond what we can think. And all other ways of evacuating are not ſo much as to be dreamt of.

Obſervation XIII.

Obſer. 13. *T*——— *B*——— was troubled with a Looſeneſs, that he went to ſtool ſome 15 times a day, for two days. On the third I ſaw him, and ordered him next morning the following Medicins.

℞. *Rhab. el ſubtil. pulv. cinam. an* ℈ℓ. *M. ac capiat mane cum regimine.*

This Powder ſeemed not to make him go more frequently to ſtool than he had formerly, and rather not ſo often, for he had only eight Stools by it; yet, in the evening, I preſcrib'd him the following Julep.

℞. *Aq. Plantag. lact. alexiter. an* ℥ii. *cinam. hordeat.* ℥ℓ. *Syr. Myrtil* ℥ß. *Diaſc. Fracaſter.* ℥ℓ. *Confect. de Hyacinth.* ℥ß. *M. ac capiat Cochl.* 3 *vel* 4 *ſingulis horis.*

He ſlept very well that night, and had but two Stools all the next 24 hours,

hours, and thereafter continued in a natural way, without any further help.

'Tis true thoſe kinds of Medicins ſerve our purpoſe pretty well, when the cauſe of Diarrhea's is confin'd to the firſt paſſages, yet when they are produc'd in hot Countries, in people of a thin habit of body, and that very hot, &c. they are not quite ſo certain, but we muſt depend upon Medicins of greater force, and blooding to the ſtrength of the Patient. 'Twere a work of Supererogation to unfold the nature, and different ſtates of this ſickneſs, after the way of the former, ſince it is not, ſo much, our conſtant Companion; and therefore, it ſhould be a little from the purpoſe: yet, in ſhort, I muſt advertiſe my brethren (contrary to the moſt of practice) that the moſt powerful Medicins given in a liquid form, and in any quantity, cannot prove half ſo ſucceſsful, as Medicins of half the force in the contrary circumſtances.

Obſervation XIV.

George Gardner, was taken ill with a Looſeneſs, Obſer. 14.

Looſeneſs, for ten days, by which he went above thirty times a day, for all that time. When I ſaw him his Pulſe was weak and frequent, his tongue full of deep chinks, he had a great drought, and was a very Skeleton.

I ordered him a drachm of a Powder, I give in ſuch caſes, made into Pills with a little old Conſerve of Red Roſes; which he took about bed time, and drunk none for two hours after; tho I allowed him as much of the *Decoctum album* as he pleaſed to drink, when that time was over; he ſlept indifferently that night, and had not a Stool all next day, but recovered daily; tho 'twas at leaſt ten days before he recovered his fleſh or colour.

I conceal this Medicin, becauſe I think it better than the *Fr. Ipicochoana* it ſelf, by which *Helvetius* has made ſo plentiful a fortune; for I dare affirm with all modeſty, that I have tried it with above 200, when I thought a Diarrhea was to be ſtopt, without ever miſſing of the ſucceſs, and that without any vomiting or violent conſequences that attend the other,

other, and a great deal more certain. Yea I have given it with *Balſ. capoiv. Opobalſ. Balſ. Peruvian.* and the like, with wonderful ſucceſs, in Dyſenteries themſelves, and but ſeldom was oblig'd to give a ſecond doſe. But its further confirmation, I leave to experience, and the trial of others. I tried it for ſtopping Gonorrheas, in their proper time, but it did not anſwer expectation.

Obſervation XV.

James Graham, of a thin habit of body, and very hot blooded, fell into a moſt violent Looſeneſs, ſuch as Phyſicians commonly call a *Colliquative Diarrhea*, he went ſome eight or ten times to ſtool every day. Obſer. 15.

Having no ſymptom, that could ſignify to me any thing of an indigeſtion, or of thoſe impurities in the Guts, that are ſaid to, and may maintain, and produce a Looſeneſs, and his blood being of that nature, and velocity to make conſiderable ſecretions that way; my deſign was to alter that coheſion and velocity by letting him blood: and therefore I ordered

ordered him to be let eight ounces of blood, which was all I judg'd he could ſpare for that end, and that the powers of the faculties might not be leſſened; accordingly all that day he had no Stool, and was very regular that way thereafter; but the *Rectum* and *Anus* being very much excoriated by the ſharpneſs of the humour, which he complained of, as a violent heat in that part, three days after; and therefore to prevent any Inflammations and their Attendants, as a Sphacelus and Gangrene, I thought it moſt reaſonable to preſcribe him the following Clyſter.

℞. *Aq. font. moderat. tepidæ* ℥x. *Syr. de Alth. Fernel.* ℥iij. *M. f. enema.*

He kept this Clyſter two hours, and then rendered it, and was very eaſy and well. Now, when I relate this, it brings into my memory a pretty ſingular ſort of a caſe that happen'd laſt year, when I was on board the *Vanguard*; and becauſe 'twill not want its uſe, I ſhall preſume to go back ſo far to relate it.

Obſervation

Obſervation XVI.

Mr. *Maxum*, a very brave and good Officer, then a Lieutenant in the *Vanguard*, had a Looſeneſs for a day or two, about the time the Fleet was at *Diep*; it went off, but he was troubled with a moſt violent Teneſmus, or a deſire to go to ſtool. At that time I had been aboard the *Royal William*, attending the Marquis of *Carmarthen* in a Fever, and was commanded for *England*, at his deſire, to perfect that Cure; ſo I knew nothing of that Gentleman's illneſs at home, till about eight days after the Fleet came to *Spithead*; and then I admir'd what a change was upon him, in ten days or a fortnight ſince I had ſeen him: he was a perfect Skeleton, he could not reſt a nights, and his Teneſmus coutinued; I advis'd him to go aſhore for his Recovery, which he did; but the Fleet ſailing ſix days after to the *Downs*, he followed the Fleet in the Ship's Pinnace, which happen'd to be aſhore when the Fleet ſailed, and came to us ſix or ſeven hours after we came to an anchor in Obſer. 16.

the

the *Downs*; he was then worſe, and complained of an inflammatory ſort of a pain in his Inteſtines, which was very troubleſom, when he grew warm in bed. He told me he could but die, and that he would do aboard, under my care, if I would not order him Medicins aſhore; ſo he went aſhore by Capt. *Fairborn's* leave, and before he was four days in *Deal*, he was a great way in his Recovery, by the uſe of the following Medicins.

℞ *Decoct. fortior. braſſic. & fl. Melilot. in aq. commun.* ℥x. *Syr. de Alth.* ℥ij. *Terebinth. Venet. Vitel. ovi ſolut.* ℥ii. *Sal prunel.* ℥j. *M. f. enema, quod injiciatur quoque mane hora nona, ac hora quinta pomeridiana.*

At bed times he took this Bolus.

℞ *Balſ. Lucatel.* ℥ß. *nitr. corollat.* ℈j. *Laudan. opiat. gr. j. Syr. de roſ. ſicc. q. ſ. ut f. Bolus.*

His ordinary Drink was a ſmall Decoction of Sarſa and new Milk, and his Diet, Bread and Milk, or Bread and Whey; but after 4 or 5 days I allowed him Chicken, and ſuch Victuals as are eaſily digeſted; and about eight days after, he came aboard in perfect health, and only took thoſe Medicins

Medicins for ſix or ſeven days more.

Obſervation XVII.

—— *Follen*, a Servant of Capt. *Groenaway*'s, in the *Elizabeth*, was ill of a ſpitting and vomiting of blood a whole year, by which he was brought very low and weak; the night before I ſaw him he had vomited up a great deal, and was a ſpitting of blood that day. Obſer. 17.

When I ſaw him I intended to make a Revulſion, and preſerve the full force and determination of the blood into ſome other part by letting him blood, yet in ſuch a quantity that he ſhould not be further weakened; and therefore he was let ſeven ounces of blood in his right Arm, with the Orifice of the Wound wide enough to allow the blood a quick and free paſſage; all which ſucceeded ſo very well, that he declar'd he was a great deal lighter; and eaſier while a doing, and ſpit nor vomited any more all that day: yet to make the blood thicker for ſome time, that the broken capillaries might the better unite, I preſcrib'd him the following Electuary. ℞

℞ *Conſerv. roſ. rub. antiquar.* ℥j. *acetoſ. germin. querc. an* ℥ß. *ſang. Dracon.* ʒij. *Lapid. hæmatit. ppt.* ʒj. *ſyr. de roſ. ſicc. q. ſ. ut f. Electuar. De quo capiat quantitatem nuc. myriſtic. major bis in die.*

He conſum'd this Medicin in ten days; in all which time he had nothing of his vomiting or ſpitting of blood.

The next thing to be done, was to repair this Skeleton, whoſe Pulſe was very frequent, and in every ſeven *ſtrokes* intermitted the time of *two*: and this I endeavoured by the following method. I firſt ordered him this Ptiſan for his ordinary drink.

℞ *Rad. Sarſ.* ℥ii. *Symphit.* ℥j. *chin.* ℥ß. *lign. Saſſaf.* ʒii. *Coq. l. a. in ſ. q. aq. font. ad* ℔ ij. *circa finem addendo paſſul. maj. integr.* ℥iv. *Colatura clara reponatur in lagæna vitrea pro uſu.*

He took this Electuary for ſix weeks.

℞ *Pulp. paſſul. major conſerv. flor. cynosbat an* ℥ij. *radic. helen. condit. cortic. aurant condit. an* ℥ß. *Theriac. Andromach.* ʒij. *nitr. corollat.* ʒj. *ſyr. alth. q. ſ. ut f. Electuar. mollior conſiſtent. Capiat quantitatem nuc. avellan. bis in die, ſuperbibendo vini Canarini cochlearia duo.*

'Twas

'Twas ſurprizing to ſee the change was made on him in a fortnight or three weeks; he recovered his fleſh, ſtrength and colour, till in the latter end of the year he got the *Kentiſh* Diſeaſe in the *Downs*, and was put ſick aſhore at *Deal*. Then I ordered him firſt to be vomited, next to take the Jeſuits Powder, as I have preſcribed it in the 9th *Obſervation*; and then to begin the uſe of his former Medicins, ſo ſoon as his Ague was removed, but to take the following Infuſion, after his Electuary, in place of the Canary.

℞ *Radic. Gentian.* ℥ß. *fl. Chamomil. ſummitat. menth. an M.* ij. *cortic. aurant peruvian. an* ℥ß. *pptis ſ. a. affund. Vini rubelli* ℔ ij. *Stent per biduum in infuſione; dein capiat cochl.* 3 *vel* 4 *tempore dicto.*

He miſs'd of his Ague by theſe Medicins; but I can ſay no further about his Recovery, the Ship I was on board of being ordered to the *Buoy of the Nore*.

Obſervation

Obſervation XVIII.

Obſer. 18. *K*—— *B*——— of the—— was troubled with a pain in his Yard, after an impure copulation; which, very ſoon appear'd in a running, and that but very ſmall, at firſt; but encreas'd daily, and was of a green colour, he had an *Chaude Piſſe, une chorde*, and the erection was very painful.

He complain'd of it to me when at Sea, and I cured him of the Gonorrhæa, and its Appendices, in a fortnight, without taking one grain of Mercury, Mercurial Preparations, Turpentine, Decoctions of Woods, Injections, and other Medicins, that are generally preſcribed with all the uncertainty imaginable. I could very willingly communicate this way of curing for publick uſe, if I might in honour; being no longer at my own liberty to diſpoſe of it, ſince I have communicated this method to a learned Member of our College, in lieu of a practice he values very much. Yet without any breach of Faith, I aſſert, that the tedious, uncertain, and dangerous practices in this diſeaſe, have proceeded

proceeded from the miſunderſtanding Phyſicians are in about it; whereas if its *place*, *force*, and *way* of *communication* were more ſenſible and obvious, we might ſoon diſcover more certain, genuine, and more natural ways of curing, and thoſe be, even, improved, beyond what any Man has hitherto thought of. But it not being convenient, upon this occaſion, to evince thoſe miſtakes too particularly, for this place; I will content my ſelf to prove, that the cauſe of this Diſeaſe is not entertained in the *Proſtatæ*, *veſiculæ ſeminales*, or any ways further than the *Yard* it ſelf; without going too deep into the argument, or anſwering the Objections may be reaſonably made againſt its being there, thinking it the firſt part of knowledge not to be impoſed upon, and the ſecond the putting things to rights; and tho we are not able to do *this*, and are ſure of the firſt, yet ought we fairly to confeſs our ignorance, that very ſubſtantial piece of Humanity, rather than to ſpeak things of which we have no thought, and a great deal leſs, to build our other reaſonings and practice upon ſo ſandy foundations:

Now

Now that we may do the firſt, and diſcharge our thoughts of ſuch a cheat, let us call into our memory the Hyperſarcoſes we daily ſee, and let us but compare this ſpungy fleſh, that thus fills up the paſſage of the Urine, with any thing elſe we find upon other occaſions; and I'm ſure a Man that ſees like another, and has the ſenſe to compare, can find it not much different (but eſpecially in its growing) from the like Excreſcencies that happen, in curing wounds, ulcers, *&c.* a certain Argument that there is a ſolution of unity in the part, where thoſe Muſhrooms ſprout, which cannot be kept down and checkt like other fungous fleſh, and is ſeldom to be prevented in the healthieſt people by a diſorderly practice. I know it may be ſaid, that there may be little ulcers bred in the *Urethra*, by the ſharpneſs of the matter that flows that way, from the affected parts, and they may make this falſe fleſh, tho theſe ulcers can never ſupply this running: but to drive this argument no great length, and not to outſhut a common ſight, I ſhall demonſtrate very plainly, that theſe ulcers are begun *only* in the *Yard*,

and

and afford this *running* from *it*; and at ſome other time make it plain, that this running comes not from above *three inches* within the Yard, and *how* that is done. For the preſent purpoſe let us remember, that our Anatomy teaches us, that there is a *valve* placed at that end of the *Penis* that's next the belly, that hinders the *Regurgitation* of the the Urine; and in the ſecond place that Runnings can be ſtopt by *Injections*, tho very often to the miſfortune of the Patient. Now theſe *Injections*, at beſt, are as *ſolid*, if I may ſo ſay, as our *Urine*, and this valve hindering the repaſſing of the Urine, we may conclude, that it hinders the paſſage of a body not more fluxil than the Urine: but ſince theſe Injections ſtop a plentiful running, and yet not going out of the Yard, we may conclude, that it is in the Penis they have their effects; and if ſo, then it's from the *Penis* this ſupply is made, which was to be demonſtrated, againſt the common Hypotheſis; and therefore it is no wonder, that Men are not able to better the Practice, from ſo unthinking Theories.

I fore-

I foreſee diſtinctly, the inconveniences can be alledged againſt what I hint at, yet I ſhould think it an unpardonable digreſſion to obviate them in this place, and do promiſe to demonſtrate, even to a certainty, the ſeat and nature of this Diſeaſe, about which Phyſicians are as much in the dark, if not more, as about the time it was firſt known in the world.

Obſervation XIX.

Obſer. 19. Captain *Poulten*, then commanding the *Charles* Galley, was taken with a violent Quinſey, on our Voyage to *St. Malo*; for which his Surgeon gave him ſome things; but that day being in very hot ſervice, and being oblig'd to ſpeak very much, in giving his neceſſary orders, the pain and inflammation were very great, and he could not ſleep all that night: next day, being *Saturday*, he ſent for me in the morning; and finding that he was ſick three days before, my buſineſs was to diſcover the ſtate of the Diſeaſe, and to what height it was come, that accordingly as the ſymptoms of ſuppuration appeared, or not, I might proceed

proceed in the Cure. Finding, then, no intimations of the ſuppuration, and a ſufficient revulſion being made, by the blood his Surgeon let him but two days before; conſidering too the violence of the other ſymptoms.

I ordered him to be let ten ounces of blood out of the Jugular Vein of the moſt inflam'd ſide; which being done, I troubled him not with Gargariſms, which are not always ſo ſafe, ev'n when they can reach the part affected; but ordered him to keep the part warm, to eat only Water-gruel, and to uſe the following decoction for his ordinary Drink.

℞. *Rad. Bardan.* ℥iij. *acetoſ.* ℥j *hord. mundat. M. j. Coq. ſ. a. in aq. font. q. ſ. ad crepituram hordei. Colatur. per ſubſidentiam depurat* ℔ij. *add. mel. opt. q. ſ. ad gratiam.*

And next day he took this purging Potion.

℞ *Fol. Sen. ſine ſtipitib.* ℥ß *Rad. Rhabarb. el. & inciſ.* ℥ß *cinnamom. acerrim.* ʒi. *Infund. per noctem in decocti paſſularum majorum* ℥vi. *Colaturæ per expreſſionem factæ add. Syr. de Spin. Cerv.* ℥iij. *M. ac bibat hora ſeptima cum regimine.*

It purg'd him ten times very eaſily, and he was mightily relieved; he could ſwallow any thing down, and talk'd with any body if convenient. The Inflammation being thus vanquiſhed, I begun the uſe of ſuch Powders that promote the fluxility of the blood, but wrapt them up in a convenient Syrup, leſt they ſhould offend the parts, in the paſſing, by their roughneſs.

℞ *Ocul. cancr. ppt. coral. rub. ppti, an* ʒß *antimon. Diaphoretic. gr.* xv. *ſyr. alth.* ʒij. *M. ac Capiat tribus vicibus, ſuperbibendo cochlear. julapij ſequentis, quod*

℞ *Aq. Spermat. ranar. fl. chamomil. (ſeu eorundem decoct.) an* ʒij. *aq. cinnamom. hordeat* ʒß *ſal. prunell.* ʒß *ſyr. capil. vener.* ʒl. *M. f. julap.*

He continu'd the uſe of the Ptiſan preſcrib'd for his ordinary drink, and on the *Tueſday* took his purging potion as before, and was perfectly well thereafter.

There are two things I would have obſerved in this diſeaſe; firſt, that the Medicins upon the paſt deſign be never given till we be convinc'd that the obſtruction in the capillary arteries, of the

the part thus affected, is not ſo powerful; for when they are given before that time, as a great many Authors perſwade us, they only ſqueeze out the thinner part of the blood, and leave the reſt deſpoiled of a vehicle fit to maintain its fluxility, and ſo very convenient to heighten the obſtruction, which cauſes this inflammation and its conſequences: and therefore he muſt be ſure to blood plentifully, and the right way, before we think of giving internal Medicines.

The other is, that we buſie not, nor amuſe our ſelves with the idle, and not only idle, but uſeleſs, and impracticable diſtinction the Authors make in this diſeaſe; when they tell us, that ſince 'tis an inflammation about the Throat, if that be of the internal muſcles of the *Larynx* it muſt be call'd a *Cynanche*; but if of the external muſcles, a *Paracynanche*: and if on the internal muſcles of the *Pharynx*, a *Cynanche*; if on the external muſcles of that part a *Paracynanche*. And that this diſtinction is impracticable, is evident to any one that knows the Anatomy of theſe parts; how ſmall

the proper muſcles of the *Larynx* are, and how near the internal and external muſcles are one to another; and they only divided and parted by a thin membrane, which cannot only not hinder the inflam'd muſcles of the one ſort to preſs hard upon the other, but is even it ſelf affected with this Inflammation. But they ſhould have told us too, the ſymptoms of This part's being affected, and ſuch ſigns whereby we may diſtinguiſh the Inflammation of the one ſort of theſe muſcles from *That* of the other: but of this too much.

Thus I have run over, with an indifferent exactneſs, my Diſquiſition into the marine diſeaſes, and the Hiſtory of thoſe in the Fleet laſt Summer; which, I preſume, may correct a great many errors and miſtakes in that affair, and highly contribute to an amendment of others, of the ſame nature: and cannot doubt, but that the Candor of the ingenious will very eaſily cover any pieces of Frailty I may have committed in this firſt Eſſay; and for that favour, I ſhall endeavour to better it, if I find encouragement

courageement ſuitable to the Undertaking. Yet, all theſe things will better appear, in the Hiſtories of the next years ſervice, that are to be continued with this.

FINIS.

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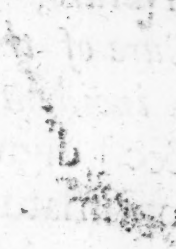

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